

Step by step for KX-UDS/UDT series installation

(KX-UDS/UDT series)

June 13 , 2017

Ver.1.2

Panasonic Corporation

Abstract about this document

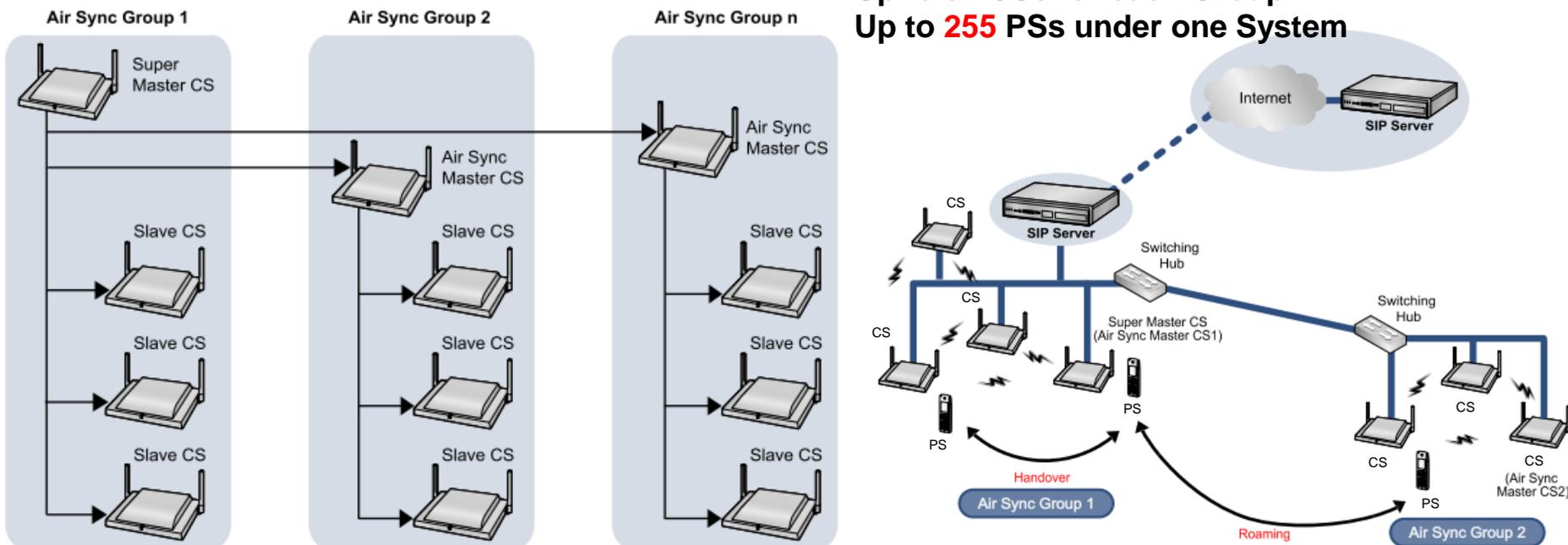
This document describes about step by step for KX-UDS/UDT series installation.

Revision history

Date	Version	Revision	Firmware version
Aug 21, 2012	Ver. 1.0	Initial Release	All versions
Dec 21, 2012	Ver. 1.1	To add example of how to site survey.	UDS124CE: 01.202 or later UDS124 : 01.002 or later
July 3, 2017	Ver. 1.2	To add taking few minutes before to be able to do handover after finishing registration. Add page 47	All versions

System configuration

Up to **8** Air Sync Group
Up to **32** CSs for each Group
Up to **255** PSs under one System



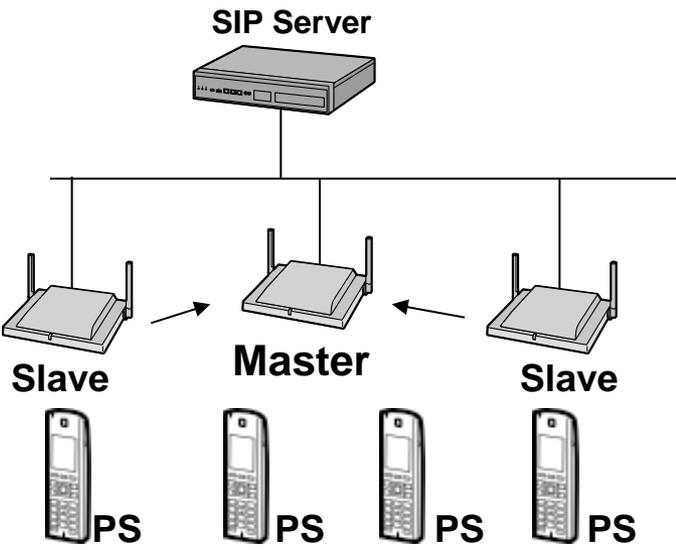
The Air Sync Master CS of Air Sync Group 1 is the most important CS.
It is called the “**Super Master CS**”.

Note

- You can move between the coverage areas of CSs during a conversation, without disrupting the call. This is called "Handover" and is only possible within the same Air Sync Group.
- The system requires one Super Master CS to control the system as a whole. The Air Sync Master CS of Air Sync Group 1 becomes the Super Master CS.

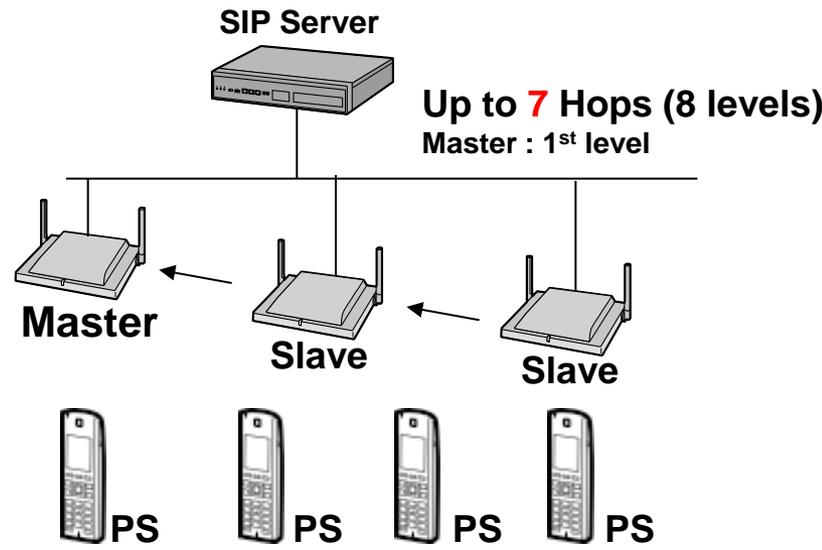
Overview of installation process

Case: 1 Hop To Master from each Slave



- Site Survey
- Basic Network Configuration
- CS Registration
- Configuration
- Handset Registration

Case: Multi Hops To Master from each Slave



- Site Survey
- Basic Network Configuration
- CS Registration
- Tree Survey
- Configuration
- Handset Registration

Tree Survey is not required in the case there is only 1 hop to Master from each slave.

1. Site Survey



2. Basic Network Configuration



3. CS Registration



4. Tree Survey



5. Configuration



6. PS Registration

Appendix

1. Site Survey

1.1 Site Survey

1.2 How to setup Maintenance mode

2 1.3 Example of How to site survey

1.4 Example of How to make site MAP

3. CS Registration



4. Tree Survey



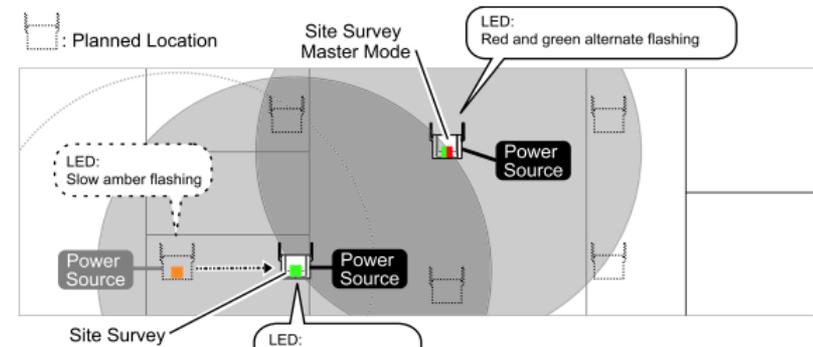
5. Configuration



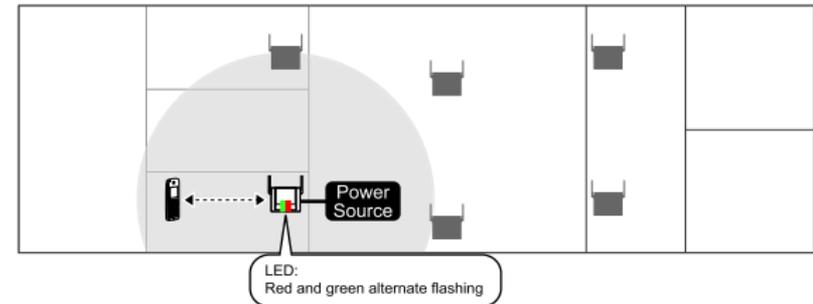
6. PS Registration

Appendix

- Use **2 CSs** to conduct the site survey to check radio signal strength.
- Check the radio signal strength by the color of the CS's LED.



- After confirming the CS coverage area for air synchronization, confirm the speech quality.



1.1 Site Survey <Step1> : Turn on Site Survey Master CS

- You can set Site Survey Master mode from **normal mode** or **fixed IP mode**.

Normal mode

1. Insert AC adapter cable to the CS.
(Assume this cell station will be Site Survey Master Cell Station) .

LED
Green > Amber > OFF > Red flashing

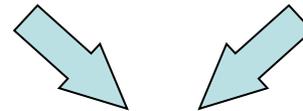
Note:

LED indicates as above explanation when you start site survey with non-active CS.
Reset button for site survey mode is available even if the CS has already run in the system. In this case, LED becomes green generally.

Fixed IP mode

1. Insert AC adapter cable to the CS
(Assume this cell station will be Site Survey Master Cell Station) **with pressing RESET switch**.
2. Release the RESET Switch when the LED flashes [Green/Red/Amber] alternately, then the IP address is set to [192.168.0.241]

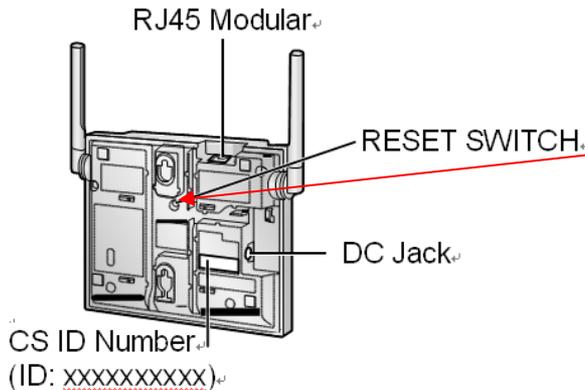
LED
Green > Amber > OFF > Green/Red/Amber flashing alternately



1. Press RESET switch for 1 second, then the LED turns on Red and Green flashing alternately.

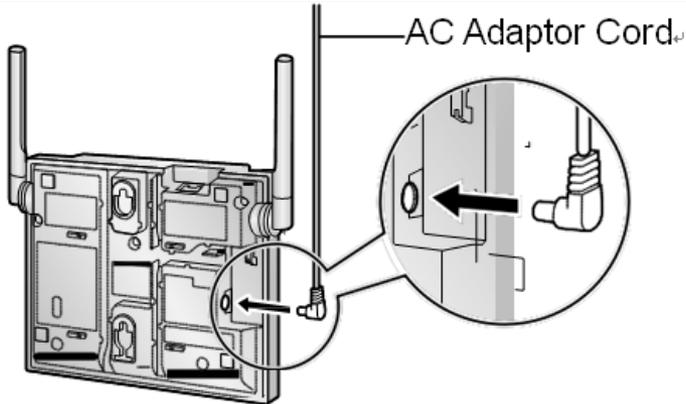
LED
Red fast flash > Red and Green flashing alternately
[This LED pattern indicates Site Survey master (signal generator) mode.]

2. Put Site Survey Master CS into appropriate position.

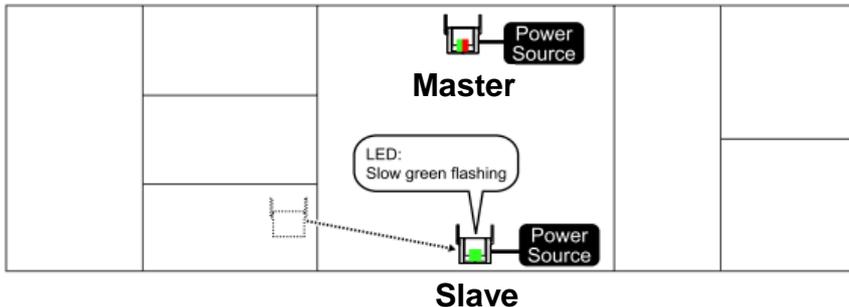


1.1 Site Survey <Step2> : Turn on Slave CS and Confirm the coverage area

1. Insert AC adapter cable to another CSs (Assume this CS will be **Slave CS**).
(This Cell Station go into Site Survey signal receiver mode)



2. Place Slave CS closet to Site Survey Master CS and confirm LED is slow green flashing.



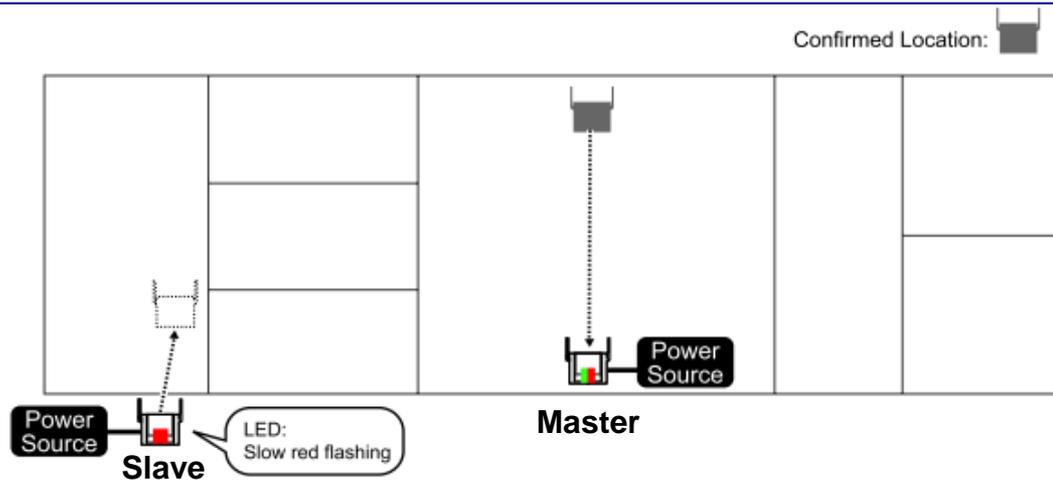
LED Status:

Indications	Description
Red and Green alternate flashing	Site survey signal generator mode (Site survey Master Mode)
Slow green flashing	Receiving site survey signal condition is good
Slow amber flashing	Receiving site survey signal condition is not good
Slow red flashing	No find site survey signal (After getting IP address)
Moderate Red flashing	No find site survey signal (Before getting IP address)

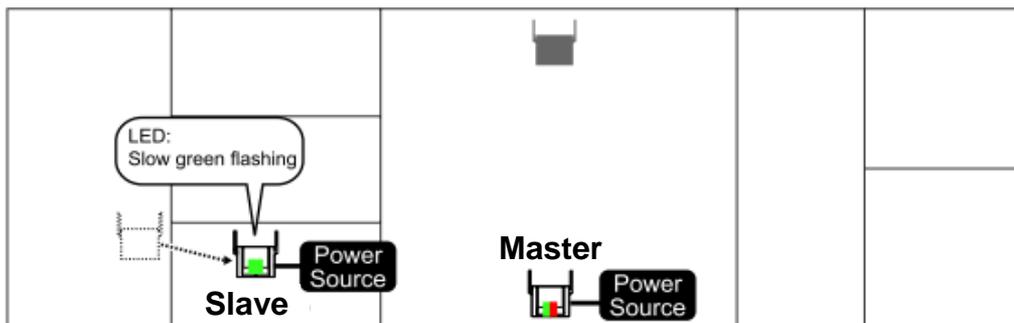
It takes around a minute to be sync again, if slave CS is not sync with master CS during Red LED status.

1.1 Site Survey <Step3> : Confirm the coverage area (Next place)

3. Place Site survey Master CS where Slave CS was, and then place Slave CS closest to current location of Master CS.

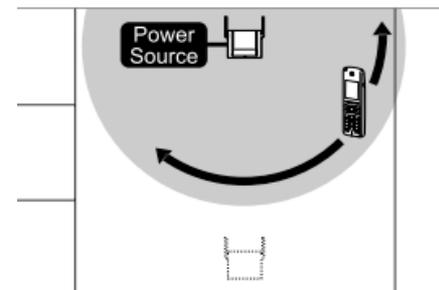


4. Confirm whether the LED of Slave CS is slow green flashing. If it is not slow green flashing, move Slave CS around to find a location where its LED turns slow green flashing.



5. Repeat steps 3 for all other locations.

1.1 Site Survey <Step4> : Site Survey by using PS and Confirm CS coverage area



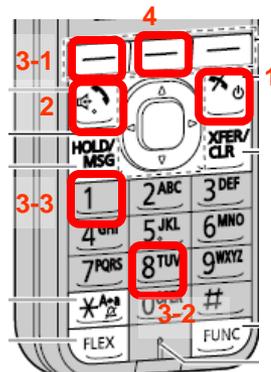
Site Survey from Handset

1. Place a CS in the location confirmed for the Air Sync Master CS in the previous site survey.
2. Supply power to the CS.
3. Start “CS Area Check” mode from Maintenance mode in PS.
* See “Section 1.2”.
In this mode, you will hear a cyclic tone from receiver.
4. Walk around the CS to confirm the CS’s service area.
If the radio strength level and Error Rate are at acceptable levels, you will continue hearing a tone from the PS and 2 lines on the LCD of the PS light green.
Note : If there is an area where you can’t hear a tone and the 2 lines of the LCD don’t light green, relocate the CS.
5. After confirming the service area, press [CANCEL] on the PS to stop the tone.
6. Relocate the CS to another location.
7. Walk around the CS to confirm the CS’s service area.
8. Repeat steps 4 to 7 for all the locations so that the CSs will provide service for whole area.
9. After finishing CS Area Check, turn off the PS.
(Please refer to “41-003” about explanation with visual information.)

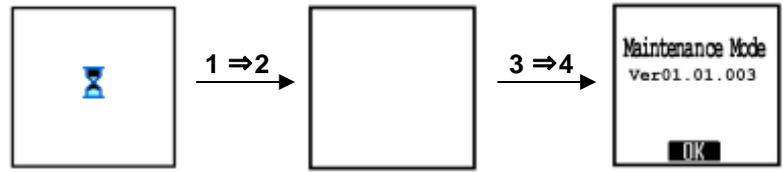
After Site Survey, you should exit Site Survey Master mode (press RESET button while power is supplied to CS), and turn off all CS used for Site Survey once.

1.2 How to setup Maintenance mode and CS Area Check of the PS

How to setup Maintenance mode



1. Turn on the PS by pressing and holding the POWER/CANCEL key.
2. After turning on the PS, a blank screen will be displayed. At this time, press and hold the TALK/SP-PHONE key for about 8 seconds.
3. Press the left soft key, press [8], and then press [1].
4. Press OK.



How to setup CS Area Check mode

With registered PS

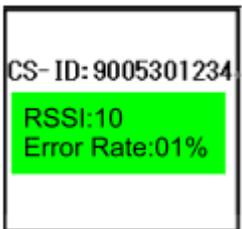
1. Enter "Maintenance mode".
(See above)
2. Select "CS Area Check", and press "OK" twice.

With Un-registered PS

1. Turn on PS.
2. Press "MON." button.
3. Press "OK".



Display during CS Area Check on the screen

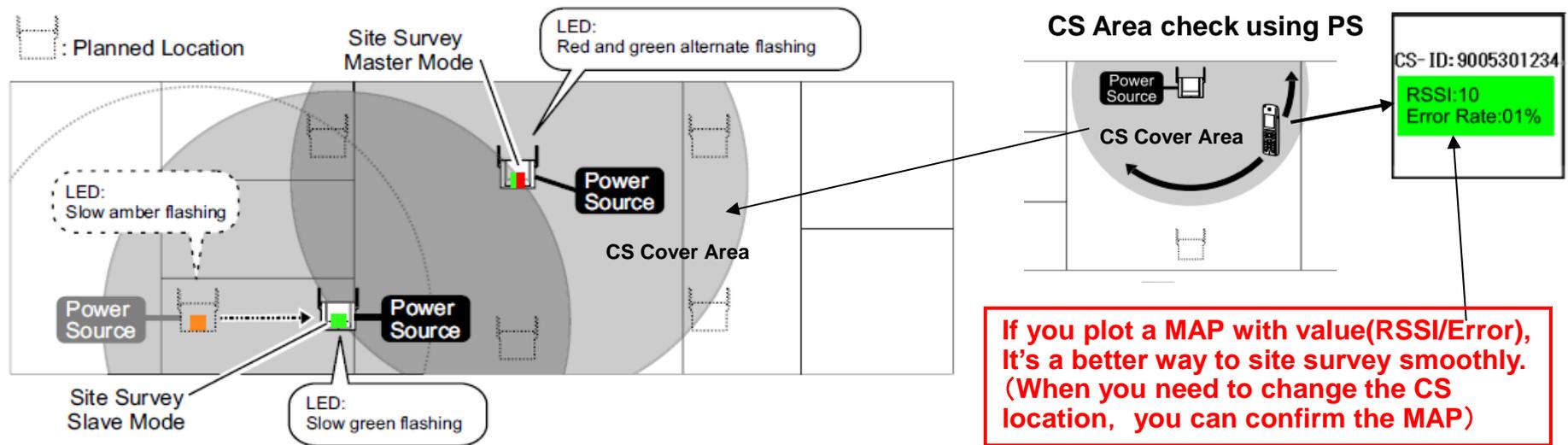


Radio Signal Strength Level	
RSSI	Quality
13 to 17	Very Good
8 to 12	Good
4 to 7	May receive noise
Under 3	May receive noise easily or become disconnected.

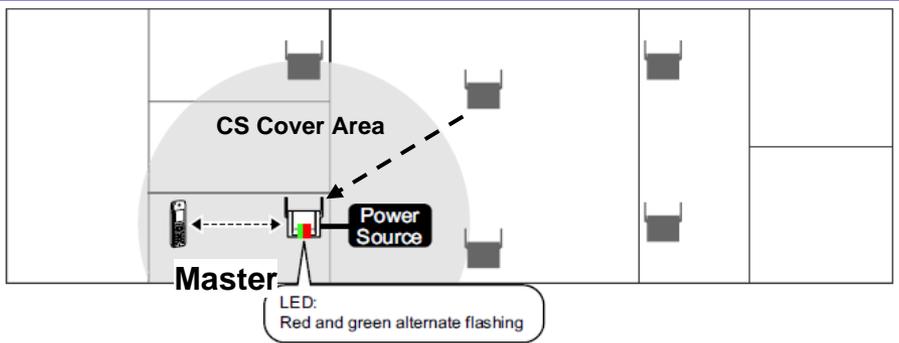
Error Rate Level	
Error Rate Level	Quality
0 %	Better
2 %	Good
3 %	May receive noise
10 %	May fail to make/receive calls

1.3 Example of How to Site Survey (by CS Area check using PS)

1. Set CS Area check mode using PS and walk around the site survey Master CS to confirm the CS Cover Area (Recommended condition is RSSI over 8 and Error Rate under 02%), then place Slave CS into the cover area of Master CS.



2. Confirm whether the LED of Slave CS is slow green flashing. If it is not slow green flashing, move Slave CS around to find a location where its LED turns slow green flashing.



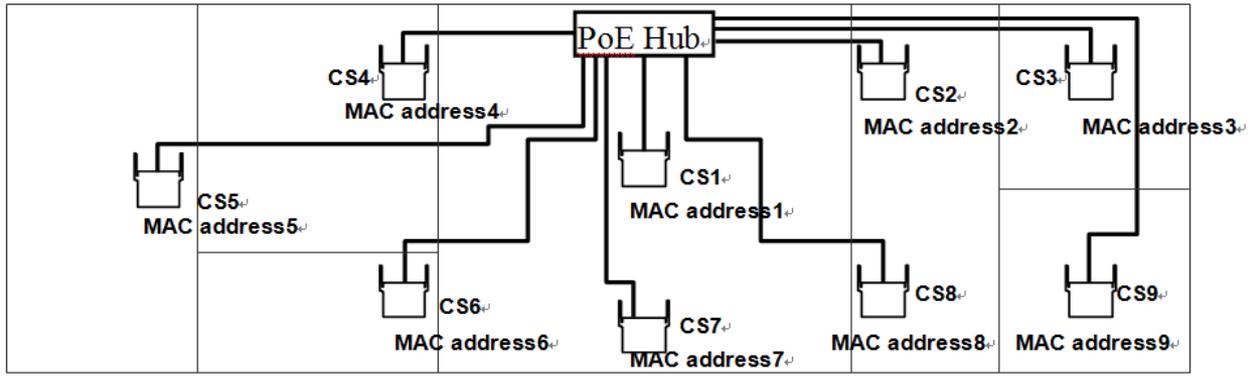
Even if you confirm the CS Area check using PS, Finally you need to confirm radio signal between Master CS and Slave CS by LED status.

3. Place the Master CS where the Slave CS was, and Repeat steps 1 for all other locations.

1.4 Example of How to make a Site MAP

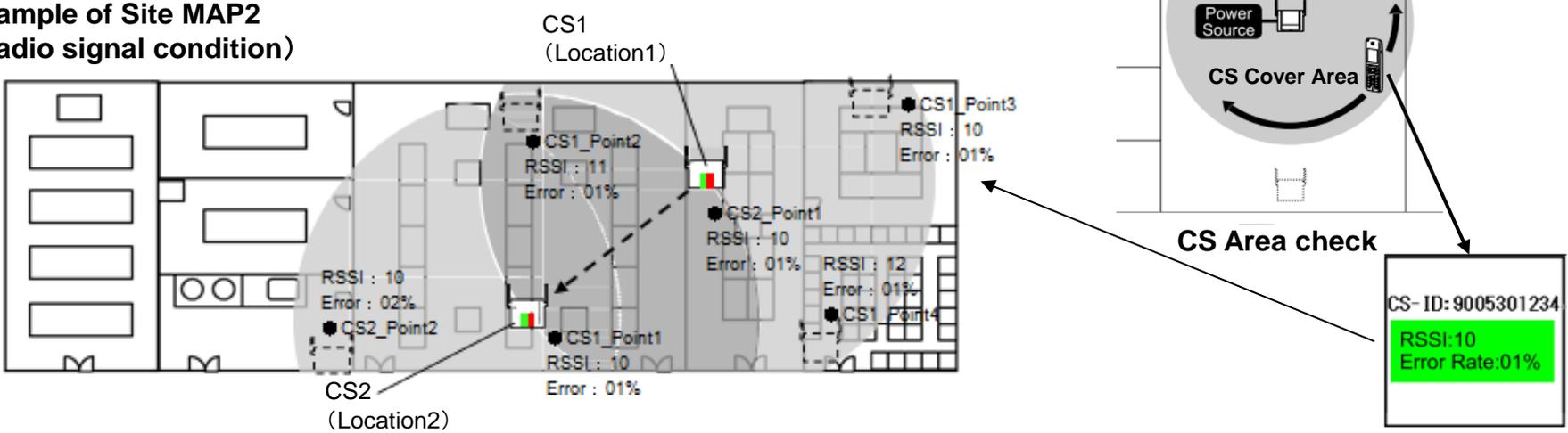
1. Please write down the each CS MAC addresses on the floor MAP.
 When you have some network troubles, you can confirm which CS cannot access on the MAP (The MAC address is written on the rear side of each CS.)

Example of Site MAP1
 (CS MAC address)



2. Please write down radio signal value (RSSI and Error Rate) around the next CS location and the important places such as a meeting room on the floor MAP.
 When you need to change the CS location, you can confirm the MAP.

Example of Site MAP2
 (Radio signal condition)



Procedure

Please turn off the CSs used for Site Survey.

1. Site Survey



2. Basic Network Configuration

2.1 Definition of IP address

2.2 Basic Network Configuration

- 3.
- Basic Network Setting
 - Air Settings

4. Tree Survey



5. Configuration

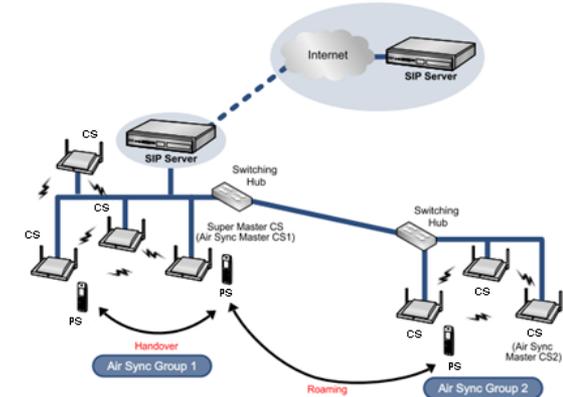


6. PS Registration

Appendix

Air Sync Group:

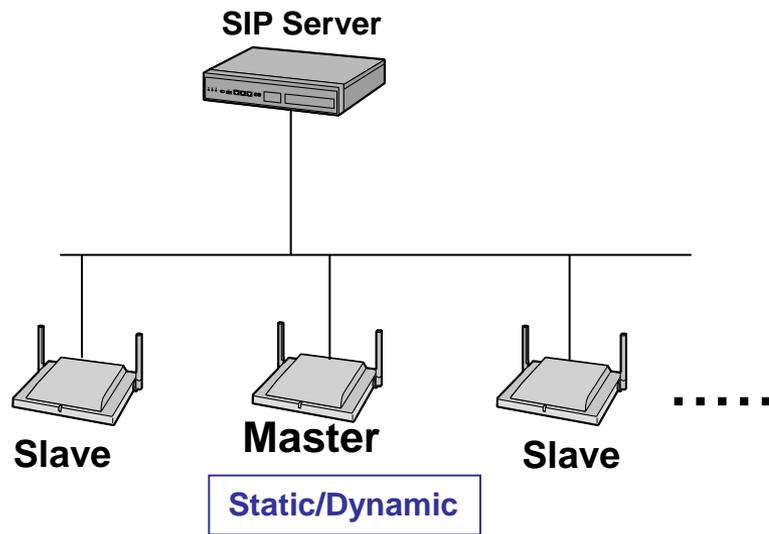
To obtain steady air synchronization over a wide area, it is necessary to create Air Sync Groups.



Please exit from Site Survey Master mode before you execute "Basic Network Configuration".

How to exit Site Survey Master mode of the CS
Press RESET switch again for 1 seconds while the LED flashes [Green/Red] alternately.
(Once CS has been turned off after you set the CS as site survey mode, CS resets automatically after above procedure.)

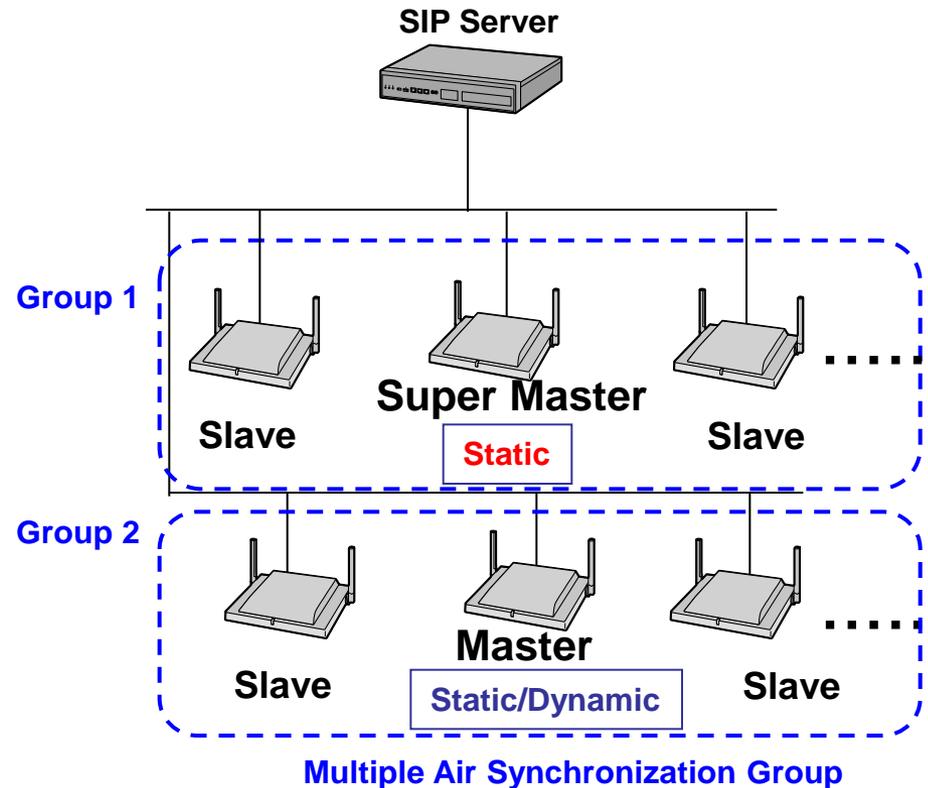
2.1 Definition of IP Address



Only 1 Air Synchronization Group

Static setting

- Enter IP address from Web UI.
- Assign specific IP address using DHCP server function.



Multiple Air Synchronization Group

The CSs are assigned IP address by Static or Dynamic (DHCP server).
Default setting is DHCP.

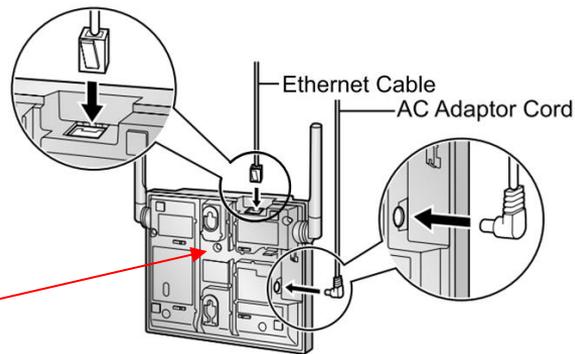
Notice

- The IP address of Super Master must be Static setting.
- In case you set IP address from Web UI and use provisioning, see “Section 5.1.2”.

2.2 Basic Network Configuration <Step1> : Basic Network Setting

This step is no need if you use DHCP server.

1. Turn on the CS (Super Master·Slave·Air Sync Master) while holding **RESET Switch**.



2. Release the RESET Switch when the LED flashes [Green/Red/Amber] alternately, then the IP address is set to [192.168.0.241].

LED: Green > Amber > OFF > Green/Red/Amber alternate flashing

3. Log in to <http://192.168.0.241/>
4. Input ID and password for administrator.



5. After log in, Configure network settings of CS and click [Save].

[Network] → [Basic Network Setting]

6. Log in to the Web user interface again using the newly assigned IP address for the CS.

Panasonic
SIP CS KX-UDS124

Status **Network** System Maintenance

Web Logout
Web Port Close

Basic Network Settings

Network
Basic Network Settings
HTTP Authentication

Connection Mode
Connection Mode DHCP Static

DHCP Settings
Host Name (MODEL)
 Receive DNS server address automatically
Domain Name Server
 Use the following settings
DNS1
DNS2

Static Settings
Static IP Address 192.168.0.99
Subnet Mask 255.255.255.0
Default Gateway 192.168.0.1
DNS1 192.168.0.1
DNS2 192.168.0.1

Link Speed/Duplex Mode
LAN Port Auto Negotiation

The CS reboots automatically if you change the settings on this item.

LLDP Settings
Enable LLDP Yes No
LLDP-MED Interval timer 30 seconds [1-3600]
IP Phone VLAN ID Priority

The CS reboots automatically if you change the settings on this item.

VLAN Settings
Enable VLAN Yes No
IP Phone VLAN ID 2 [1-4094]
Priority 7

The CS reboots automatically if you change the settings on this item.

Save Cancel

2.2 Basic Network Configuration <Step2> : Air Settings

In the case of Super Master CS (Air Sync Group 1)

The screenshot shows the Panasonic SIP CS KX-UDS124 web interface. The 'System' tab is selected, and the 'Air Settings' section is highlighted. The 'CS Class' is set to 'Master'. A 'Save' button is highlighted. The interface includes a sidebar with 'Web Logout' and 'Web Port Close' buttons, and a main content area with 'Air Sync Group', 'CS Class', and 'Super Master CS IP Address' sections. A red box highlights the 'System' tab, the 'Air Settings' link in the sidebar, the 'CS Class' dropdown menu, and the 'Save' button. Callouts 1, 2, and 3 point to these elements respectively. A note at the bottom states: 'The CS reboots automatically if you change the settings on this screen.'

1. In the [System] tab, select [Air Settings].
[System] → [Air Settings]

2. In CS Class, select “Master”.

3. Click [Save].

- The CS will restart automatically.

- The CS is now set as the Super Master CS. You may exit Site Survey Mode.

2.2 Basic Network Configuration <Step3> : Air Settings

In the case of Air Sync Master CS (Air Sync Group 2~8)

1. In the [System] tab, select [Air Settings]. **[System] → [Air Settings]**
2. Select an Air Sync Group (Group 2~8).
3. In CS Class, select “Master”.
4. Enter the IP address of the Super Master CS in IP Address.
 - When the IP address of the Super Master CS is unknown, see “Appendix B”.
5. Click [Save].
 - The CS will restart automatically.
 - The CS is now set as an Air Sync Master CS. You may exit Site Survey Mode.

Procedure

Connect the CSs to the LAN only after completing basic network configuration.

1. Site Survey



2. Basic Network Configuration



3. CS Registration

3.1 CS Registration

3.2 Delete CS Registration

4. 3.3 Add CS Registration

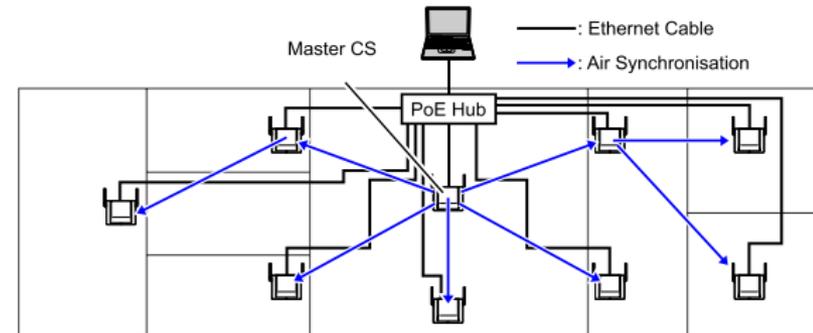


5. Configuration



6. PS Registration

Appendix



Connect all CSs in the Air Sync Group to the network and turn them on.

Notice

- During CS Registration, make sure that all unregistered CSs that are not in the Air Sync Group are turned off.
- Repeat CS Registration for each Air Sync Group.
- Confirm the MAC address of each CS before registering it.

3.1 CS Registration <Step1> : CS Registration

In the case of one Air Sync Group

The screenshot shows the Panasonic SIP CS Management interface. The 'System' tab is selected, and the 'CS Management' section is active. The 'CS Registration' area shows 'Air Sync Group' set to 1 and 'Number of CS' set to 3. The 'Start CS Registration' button is highlighted. Below, the 'CS Registered List' table shows three entries: a Master CS and two Slave CSs. A dialog box is shown at the bottom, indicating that registration is complete.

No.	Index	CS Name CS ID	MAC Address IP Address	CS Class	Remote Login
1	1	0018E73800	00.80.F0.F0.6C.78 192.168.0.103	Master	
2	2	0018E73700	00.80.F0.F0.6C.79 192.168.0.102	Slave	Login
3	3	0018E6D600	00.80.F0.E9.76.33 192.168.0.104	Slave	Login

1. Log in to Super Master CS.

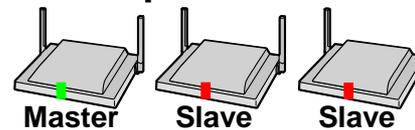
ID and Password for administrator
ID : admin
Password : adminpass

2. In the [System] tab, select [CS Management].
[System] → [CS Management]

3. Select the number of CS (1~31) which you want to register in the air sync group.
(Don't count Super master CS)

4. Click [Start CS Registration] and then click [OK].

5. When all CSs are registered, this sequence completes automatically.



LED
Master : Green
Slave : Red slow flash
far Slave : Red slow flash

After CS registration



LED
Master : Green
Slave : Green
far Slave : Red slow flash

Notice

When IP address of the Super Master CS is unknown, see "Appendix B".

Please see "Appendix C" about the detail of LED.

(If all CSs displayed in "CS Registered List", CS Registration is completed even if CS's LED is different.)

You cannot register the following CSs:

- CSs that are not connected to the network
- CSs that cannot receive radio signals from the Air Sync Master CS
- Please refer to "41-003" for causes other than the above.

3.1 CS Registration <Step2> : CS Registration

In the case of multiple Air Sync Group

CS Management

CS Registration

Air Sync Group: 2
Number of CS: 3
Start CS Registration
Stop CS Registration
Delete CS Registration

CS Registered List

No.	Index	CS Name CS ID	MAC Address IP Address	CS Class	Remote Login
1	1	0018E73800	00.80.F0.F0.6C.78 192.168.0.103	Master	
2	2	0018E73700	00.80.F0.F0.6C.79 192.168.0.102	Slave	Login
3	3	0018E6D600	00.80.F0.E9.76.33 192.168.0.104	Slave	Login
4					
5					

After finishing previous page, conduct following step.

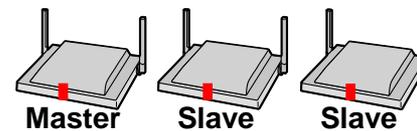
6. Select an Air Sync Group (2~8).

7. Select the number of CS (1~32) which you want to register in the air sync group.

8. Click [Start CS Registration] and click [OK].

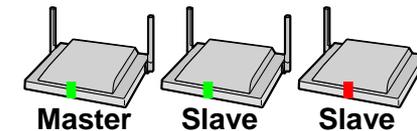
9. When all CSs are registered, this sequence completes automatically.

10. Repeat 5 to 7 for each Air Sync Group.



LED
Master : Green
Slave : Red slow flash
far Slave : Red slow flash

After CS registration



LED
Master : Green
Slave : Green
far Slave : Red slow flash



Notice

When IP address of the Super Master CS is unknown, see "Appendix B".

Please see "Appendix C" about the detail of LED.

(If all CSs displayed in "CS Registered List", CS Registration is completed even if CS's LED is different.)

You cannot register the following CSs:

- CSs that are not connected to the network
- CSs that cannot receive radio signals from the Air Sync Master CS
- Please refer to "41-003" for causes other than the above.

3.2 Delete CS Registration

In case unexpected Slave CS is registered

2. CS Management

3.

4. Delete CS Registration

No.	Index	CS Name CS ID	MAC Address IP Address	CS Class	Remote Login
1	1	0018E73800	00.80.F0.F0.6C.78 192.168.0.103	Master	
2	2	0018E73700	00.80.F0.F0.6C.79 192.168.0.102	Slave	Login
3	3	0018E6D800	00.80.F0.E9.76.33 192.168.0.104	Slave	Login
4					

3.

No.	Index	CS Name CS ID	MAC Address IP Address	CS Class	Remote Login
1	1	0018E73800	00.80.F0.F0.6C.78 192.168.0.103	Master	
2	2	0018E73700	00.80.F0.F0.6C.79 192.168.0.102	Slave	Login
3					
4					
5					

1. Log in to the Super Master CS.
 - When IP address of the Super Master CS is unknown, see “Appendix B”.

ID and Password for administrator
ID : admin
Password : adminpass

2. In the [System] tab, select [CS Management]. **[System] → [CS Management]**
3. Select the CS which you want to delete and click to check the box.
4. Click [Delete CS Registration] and Click [OK].
 - The CS which you select are cleared in “CS Registered List”.

Notice: After deleting, the CS which you select reboots automatically.

3.3 Add CS Registration

Panasonic
SIP CS KX-UDS124CE | Status | Network | **System** | VoIP | Telephone | Maintenance

Web Logout
Web Port Close

CS Management

System

- Web Language
- Administrator Password
- Change User Password
- Web Server Settings
- Time Setting
- Time Adjust Settings
- CS Name
- Air Settings
- CS Management
- Tree Survey
- CS Monitor**
- PS Registration
- PS Settings

CS Registration

Air Sync Group: 1
Number of CS: 1

Start CS Registration
Stop CS Registration

Only CS that has a check in the check box can be deleted.

CS Registration Delete: Delete CS Registration

CS Registered List

All

No.	Index	CS Name CS ID	MAC Address IP Address	CS Class	Remote Login
1	1	0018E62700	00.80.F0.E9.76.02 192.168.0.11	Master	
2	2	0018E73700	00.80.F0.F0.6C.79 192.168.0.12	Slave	Login
3					
4					
5					

Panasonic
SIP CS KX-UDS124CE | Status | Network | **System** | VoIP | Telephone | Maintenance

Web Logout
Web Port Close

CS Management

CS Registration Complete

System

- Web Language
- Administrator Password
- Change User Password
- Web Server Settings
- Time Setting
- Time Adjust Settings
- CS Name
- Air Settings
- CS Management
- Tree Survey
- CS Monitor
- PS Registration
- PS Settings

CS Registration

Air Sync Group: 1
Number of CS: 1

Start CS Registration
Stop CS Registration

Only CS that has a check in the check box can be deleted.

CS Registration Delete: Delete CS Registration

CS Registered List

All

No.	Index	CS Name CS ID	MAC Address IP Address	CS Class	Remote Login
1	1	0018E62700	00.80.F0.E9.76.02 192.168.0.11	Master	
2	2	0018E73700	00.80.F0.F0.6C.79 192.168.0.12	Slave	Login
3	3	0018E73800	00.80.F0.F0.6C.78 192.168.0.13	Slave	Login
4					
5					

1. Log in to the Super Master CS.

- When IP address of the Super Master CS is unknown, see “Appendix B”.

2. In the [System] tab, select [CS Management]. [System] → [CS Management]

3. Select an Air Sync Group which you want to add.

4. Select the Number of CS which you want to add.

5. Click [Start CS Registration].

6. Click [OK].

7. Then, additional CSs appear in “CS Registered List” and the registration sequence complete automatically.

ID and Password for administrator
ID : admin
Password : adminpass

Procedure

This step is no need if there is only 1 hop to master.

1. Site Survey



2. Basic Network Configuration



3. CS Registration



4. Tree Survey

4.1 Using CS Web

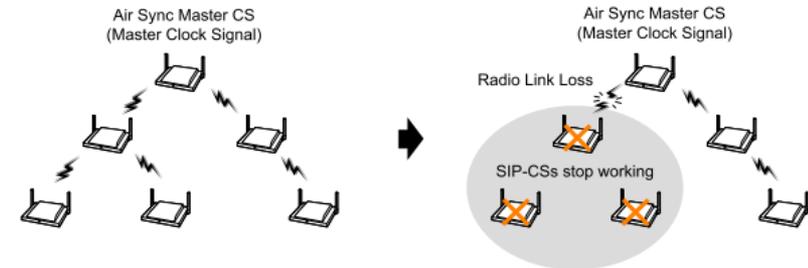
4.1.1 Manually change setting

4.1.2 Manually add setting

4.2 Using CS Maintenance Tool

6. PS Registration

Appendix



- The Tree Survey creates a Master/Slave tree structure with the Air Sync Master CS at the top and with stable air synchronization.
- The procedure can be performed automatically by using either **the Web user interface** or **the CS maintenance tool**.
- If after the Tree Survey, In case below you can change them by manually setting.
 - To need to change the Secondary CS.
 - To add a CS at the End of the connecting tree.

Note

The result of the Tree Survey will be shown in a new pop-up window. Make sure the pop-up blocker is disabled on your browser.

4.1 Tree Survey -By WEB UI- <Step1> : Tree Survey

2. Tree Survey Complete

3. Air Sync Group: 1

4. Start Tree Survey

2. Tree Survey

Index	CS Name / MAC Address	CS Class	Status	Primary CS Index	Secondary CS Index	Level
1	SIP-CS1 0080F0F06C78	Master	INS	-	-	-
2	SIP-CS2 0080F0E9763B	2nd Master	INS	1		1
3	SIP-CS3 0080F0E97633	Slave	INS	1	2	1
4	SIP-CS4 0080F0F06C79	Slave	INS	1	2	1

This step is no need if there is only 1 hop to master.

5. OK

Click [OK]

Primary CS	Level	Primary CS + Secondary CS	Level
SIP-CS1	1	SIP-CS1	1
SIP-CS2	1	SIP-CS2	2
SIP-CS3	1	SIP-CS3	2
SIP-CS4	1	SIP-CS4	1

1. Log in to the Super Master CS.
 - When IP address of the Super Master CS is unknown, see “Appendix B”.
2. In the [System] tab, select [Tree Survey]. [System] → [Tree Survey]
3. Select an Air Sync Group.
4. Click [Start Tree Survey] and Click [OK] in POP-UP window.
 - After the Tree Survey has completed, results will be displayed and all CS’s LED become green.
5. Click [OK] in Tree Survey Results window.
 - Click [Tree Image] to see a connection diagram of the CSs
 - If “Tree Survey Complete” is not displayed, check the next page.

ID and Password for administrator
ID : admin
Password : adminpass

If the Tree Survey will be conducted for 10 or more CSs, use the CS Maintenance Tool instead.

4.1 Tree Survey -By WEB UI- <Step-> : Error Message

This step is no need if there is only 1 hop to master.

Panasonic

SIP CS KX-UDS124 | Status | Network | **System** | VoIP | Telephone | Maintenance

Web Logout | **Tree Survey** | Web Port Close

Tree Survey Timeout →

System

- Web Language
- Administrator Password
- Change User Password
- Web Server Settings
- Time Setting
- Time Adjust Settings
- CS Name
- Air Settings
- CS Management
- Tree Survey
- CS Monitor
- PS Registration
- PS Settings

Tree Survey

Air Sync Group: 1

This "Tree Survey" is executed to all the CS in Survey List.

Tree Survey: Start Tree Survey

This "Result Application" is executed to all the CS in Survey List.

Result Application: Apply | Cancel

The CS reboots automatically if you press the button of "Apply" or "Cancel".

Survey List | Tree Image

Index	CS Name MAC Address	CS Class	Status	Primary CS Index	Secondary CS Index	Level
1	SIP-CS1 0080F0F06C78	Master	INS	-	-	-
2	SIP-CS2 0080F0E9763B	2nd Master	INS	1		1
3	SIP-CS3 0080F0E97633	Slave	INS	1	2	1
4	SIP-CS4 0080F0F06C79	Slave	INS	1	2	1

Tree Survey Results window

SIP CS KX-UDS124 - Windows Internet Explorer

Results
Please click 'OK' button.

EXECUTION RESULT:
Execution OK.

Display Error Message →

OK

"Tree Survey Timeout"

• Cause

Slave CS may have network trouble.
Slave CS cannot receive radio signal from another Air Sync Group CS.

• Solution

Please check the CS's power/network condition.

Please check whether a radio signal obstacle, such as a metal shelf, a door, etc., exists near the CS.

"ERROR!!! CS does not have Primary CS."

• Cause

A CS has radio signal trouble.

• Solution

Please check whether a radio signal obstacle, such as a metal shelf, a door, etc., exists near the CS.

Please refer to "41-006" of technical contents on support site for causes other than the above.

When Tree survey uncompleted, you must click [Cancel].

* After clicking [Cancel], all CSs will restart automatically.

4.1 Tree Survey -By WEB UI- <Step2> : Apply Tree Survey Result

This step is no need if there is only 1 hop to master.

Panasonic

SIP CS KX-UDS124 Status Network **System** VoIP Telephone Maintenance

Web Logout Web Port Close

Tree Survey

Tree Survey Complete

System

- Web Language
- Administrator Password
- Change User Password
- Web Server Settings
- Time Setting
- Time Adjust Settings
- CS Name
- Air Settings
- CS Management
- Tree Survey
- CS Monitor
- PS Registration
- PS Settings

Tree Survey

Air Sync Group: 1

This "Tree Survey" is executed to all the CS in Survey List.

Tree Survey: Start Tree Survey

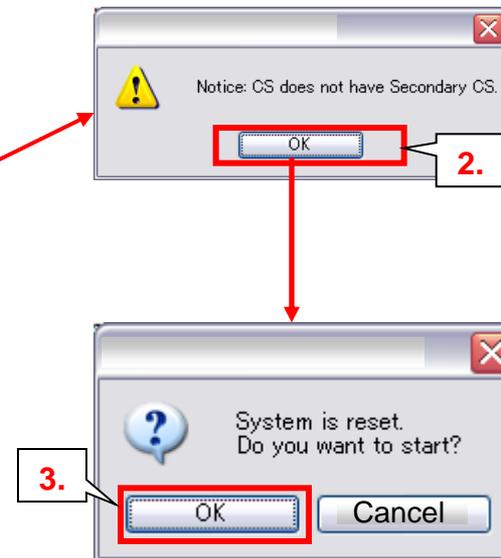
This "Result Application" is executed to all the CS in Survey List.

Result Application: **Apply** Cancel

The CS reboots automatically if you press the button of "Apply" or "Cancel".

Survey List

Index	CS Name MAC Address	CS Class	Status	Primary CS Index	Secondary CS Index	Level
1	SIP-CS1 0080F0F06C78	Master	INS	-	-	-
2	SIP-CS2 0080F0E9763B	2nd Master	INS	1		1
3	SIP-CS3 0080F0E97633	Slave	INS	1	2	1
4	SIP-CS4 0080F0F06C79	Slave	INS	1	2	1



1. Click [Apply].

2. Click [OK].

3. Click [OK].

• After clicking OK, all CSs will restart automatically.

Notice

If there are two or more Air Sync Group, repeat Step1 and 2 for each Air Sync Group.

4.1.1 Manually Change the Tree structure

System

SIP CS KX-UDS124

Status Network **System** VoIP Telephone Maintenance

Web Logout

Web Port Close

Tree Survey

Air Sync Group 1

This "Tree Survey" is executed to all the CS in Survey List.

Tree Survey Start Tree Survey

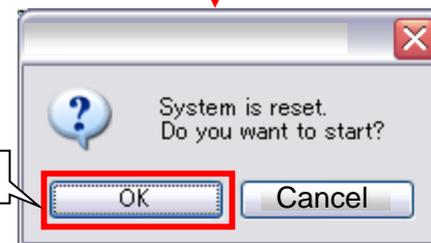
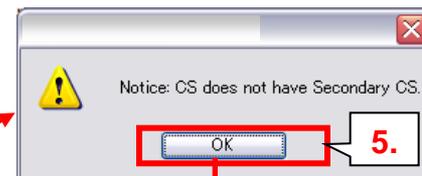
This "Result Application" is executed to all the CS in Survey List.

Result Application Apply Cancel

The CS reboots automatically if you press the button of "Apply" or "Cancel".

Survey List

Index	CS Name MAC Address	CS Class	Status	Primary CS Index	Secondary CS Index	Level
1	SIP-CS1 0080F0F06C78	Master	INS	-	-	-
2	SIP-CS2 0080F0E9763B	2nd Master	INS	1		1
3	SIP-CS3 0080F0E97633	Slave	INS	1	2	1
4	SIP-CS4 0080F0F06C79	Slave	INS	1	2	1



ID and Password for administrator
ID : admin
Password : adminpass

1. Log in to the Super Master CS.
 - When IP address of the Super Master CS is unknown, see "Appendix B".
2. In the [System] tab, select [Tree Survey].
[System] → [Tree Survey]
3. Select an Air Sync Group which you want to change.
4. Change "CS Class", "Primary CS Index" and "Secondary CS Index".
(Please refer to the Web document (The reason for needing Tree Survey))
5. Click [Apply] and Click [OK].
 - After clicking OK, all CSs will restart automatically.

4.1.2 Manually adding a CS at the end of the Connection Tree

ID and Password for administrator
ID : admin
Password : adminpass

3.

4.

6.

3.

5.

Index	CS Name MAC Address	CS Class	Status	Primary CS Index	Secondary CS Index	Level
1	SIP-CS1 0080F0F06C78	Master	INS	-	-	-
2	SIP-CS2 0080F0E9763B	2nd Master	INS	1		1
3	SIP-CS3 0080F0E97633	Slave	INS	1	2	1
4	SIP-CS4 0080F0F06C79	Slave	INS	1	2	1

1. Log in to the Super Master CS.
 - When IP address of the Super Master CS is unknown, see “Appendix B”.
2. Register a CS to the Air Sync Group for which you want to extend the CS coverage area.
 - Please see “Section 3.3”.
3. In the [System] tab, select [Tree Survey].
[System] → [Tree Survey]
4. Select an Air Sync Group.

5. The CS registered in step 2 is shown at the bottom of the Survey List.
Enter the CS index number of the CS that you want to specify as a Primary CS (and Secondary CS) in Primary CS Index (and Secondary CS Index) for the registered CS.
6. Click [Apply] and Click [OK].
 - After clicking [OK], all CSs will restart.
 - You cannot add a CS at the end of level 8.
 - After clicking OK, all CSs will restart automatically.

Notice
When you want to add CSs to the middle of the connection diagram, please conduct the Tree Survey again.

4.2 Tree Survey -By CS Maintenance Tool- <Step1> : Tree Survey

This step is no need if there is only 1 hop to master.

3. Tree Survey

2. SIP-CS Maintenance Tool

IP Address : 192.168.0.103
User name : admin
Password : *****
 Save Password
2. Next >> Exit

Configure PC with IP address and Subnet.
Click Next to connect to the device.

SIP-CS Maintenance Tool

Index	CS Name	CS ID	MAC	CS Class	Connection	Primary CS		Secondary CS	
						Index	CS Name	Index	CS Name
1	SIP-CS1	0018E73800	0080F0F06C78	Sync Master CS1	INS		SIP-CS2		
2	SIP-CS2	0018E65100	0080F0E9763B	Sync Master CS2	INS	1	SIP-CS1		
4	SIP-CS4	0018E73700	0080F0F06C79	Sync Slave CS	INS	1	SIP-CS1	2	SIP-CS2
3	SIP-CS3	0018E6D600	0080F0E97633	Sync Slave CS	INS	1	SIP-CS1	2	SIP-CS2

3. Tree Survey Wizard

1. Select CS(s) for "Tree Survey" by check boxes in "Select" column.
2. Select "Sync Master CS1" by pull down lists in "CS Class" column.
3. Click "Start" button to start "Tree Survey" (Service is stopped).

Caution:
*As the result of Tree survey, "Sync Master CS1" may change.

Index	CS Name	CS Class	Connection	Select	CS ID
1	SIP-CS1	Sync Master CS1	INS	<input checked="" type="checkbox"/>	0018E73800
2	SIP-CS2	Sync Slave CS	INS	<input checked="" type="checkbox"/>	0018E65100
3	SIP-CS3	Sync Slave CS	INS	<input checked="" type="checkbox"/>	0018E73700
4	SIP-CS4	Sync Slave CS	INS	<input checked="" type="checkbox"/>	0018E6D600

3. Start Close

4. Tree Survey Wizard

Finish
Please click "Finish" button.

EXECUTION RESULT:
Execution OK.

Back Finish Close

1. Start CS Maintenance Tool.

2. Enter following, and click [Next].

IP Address: IP address of Master CS
User name: admin
Password: adminpass

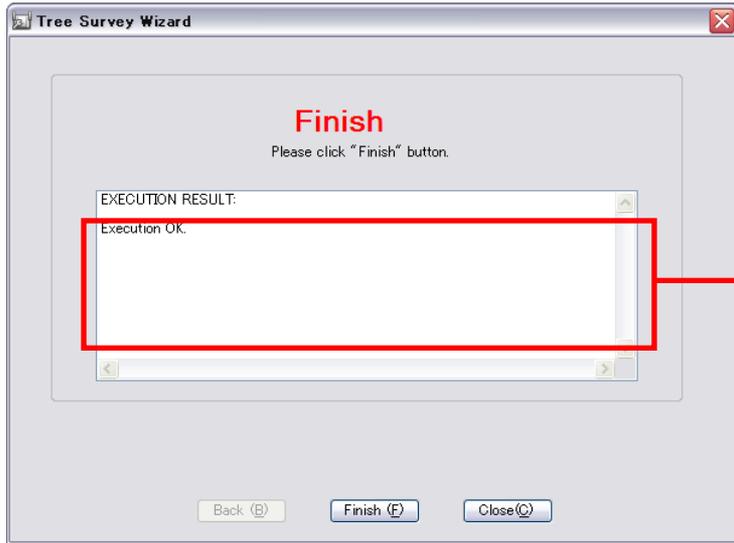
3. Click [Tree Survey], "Tree Survey Wizard" is displayed, then click [Start].

4. After "Finish" is displayed, click [Finish] button.

- If "Execution OK." is not displayed, check the next page.

4.2 Tree Survey -By CS Maintenance Tool- <Step-> : Error Message

This step is no need if there is only 1 hop to master.



Display Error Message

“ERROR!!! CS does not have Primary CS. Please move the CS(s) closer to Primary CS according to site planning.”

▪Cause

A CS has radio signal trouble.

▪Solution

Please check whether a radio signal obstacle, such as a metal shelf, a door, etc., exists near the CS.

(This is a rare case. But after site survey ,the radio signal condition might be changed by environmental change.)

“CS does not have Secondary CS.”

▪Cause

1) Secondary CS is not set .

2) CS number set as Secondary CS does not exist in the group.

▪Solution

1)Set Secondary CS manually if needed.

2)Set correct CS number of Secondary CS.

Please refer to “41-006” of technical contents on support site for causes other than the above.

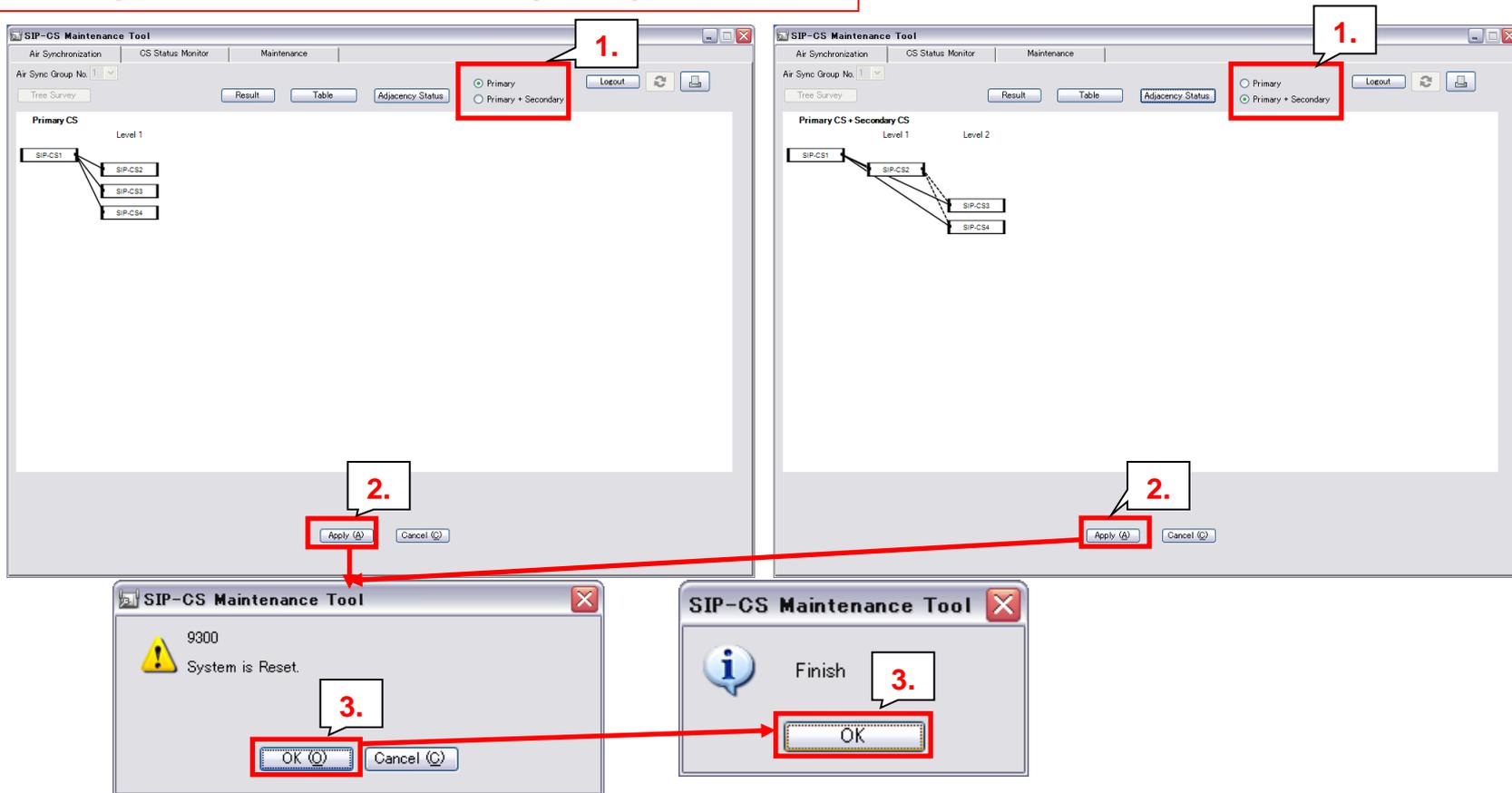
When Tree survey uncompleted, you must click [Cancel].

* After clicking [Cancel], all CSs will restart automatically.

4.2 Tree Survey -By CS Maintenance Tool-<Step2>

: Apply Tree Survey Results

This step is no need if there is only 1 hop to master.



1. Tree Survey Results is displayed.

- Select “Primary” or “Primary + Secondary” and confirm the Tree Structure.

2. Click [Apply].

3. Click [OK] and click [OK].

- After clicking OK, all CSs will restart automatically.

1. Site Survey



2. Basic Network Configuration



3. CS Registration



4. Tree Survey



5. Configuration

5.1 Overview of provisioning

5.1.1 Provisioning of process

6. 5.1.2 How to set server URL

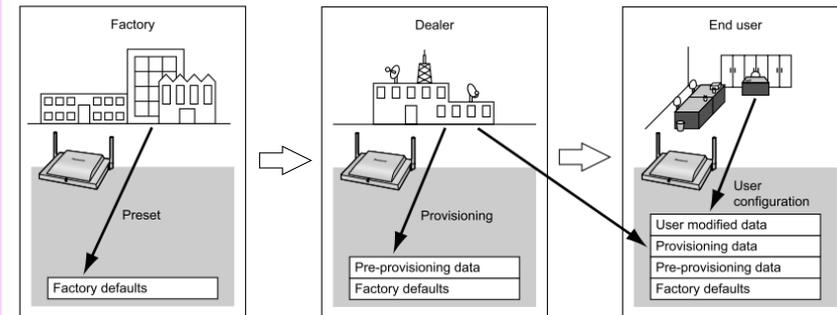
5.1.3 Configuration structure

5.1.4 Configuration file for IPEI

5.2 Configuration

The configuration file is a text file that contains the various settings that are necessary for operating the CS.

The files are normally stored on a server maintained by your dealer, and will be downloaded to the CSs as required.

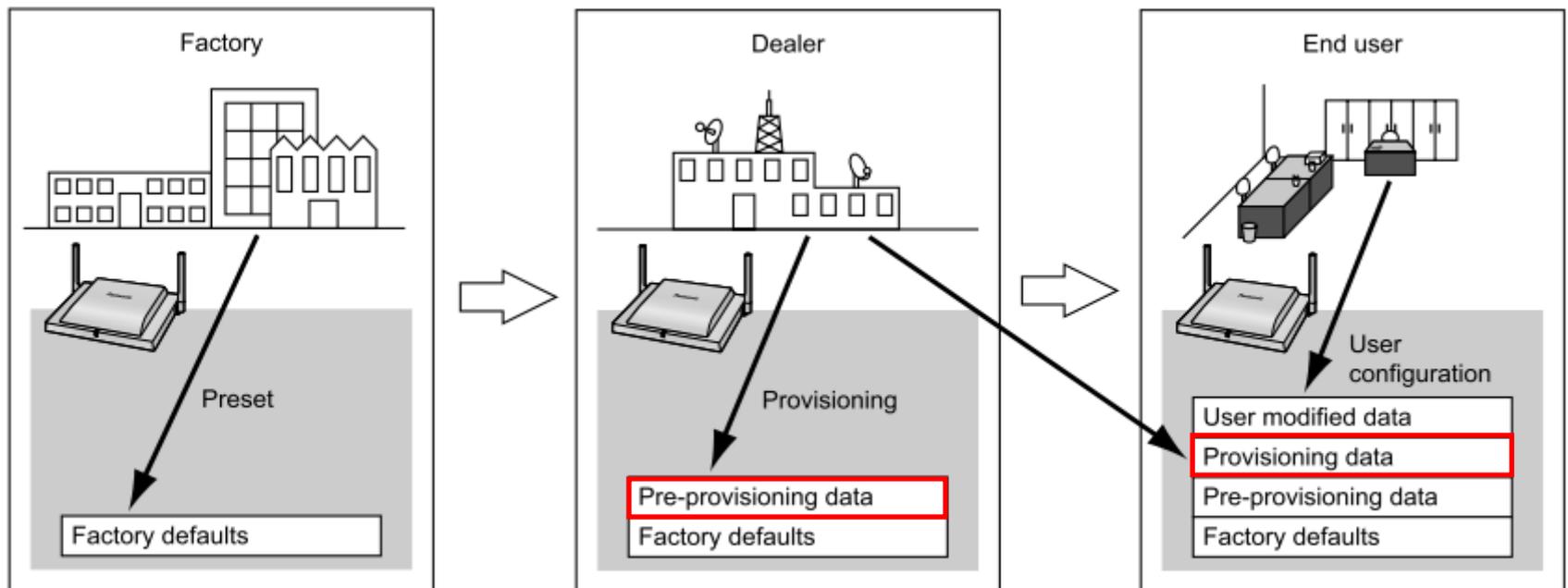


When you do not use provisioning, you can specify SIP server network information, an extension name, and extension number by Web UI.

5.1 Overview of Provisioning

Explain about the case of DHCP server option 66

When the CS starts up, it will automatically acquire the address of the TFTP server using DHCP server option 66 and download the configuration file. (Pre-Provisioning)



After pre-provisioning, you can set up the CS automatically by downloading the configuration file stored on the provisioning server into the CS.

Protocols for Provisioning : HTTP, HTTPS, FTP, TFTP

5.1.1 Provisioning process

By DHCP server option

STEP1

The CS is assigned an IP address by the DHCP server, and also receives the TFTP server address from the DHCP server using DHCP server option 66.

STEP2

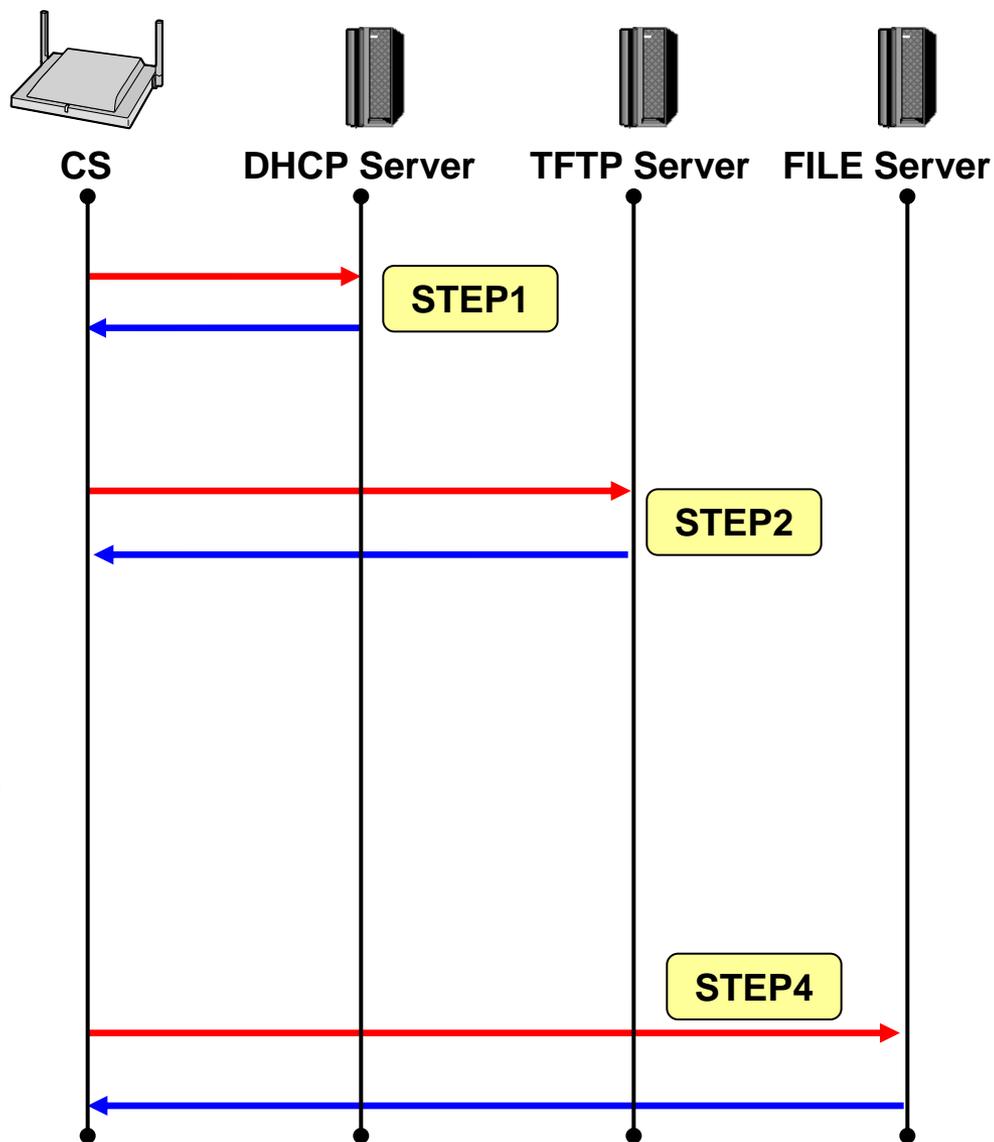
The CS downloads the configuration file for pre-provisioning from the TFTP server.

STEP3

The URL of the server where the configuration file for provisioning is stored is set to the CS.

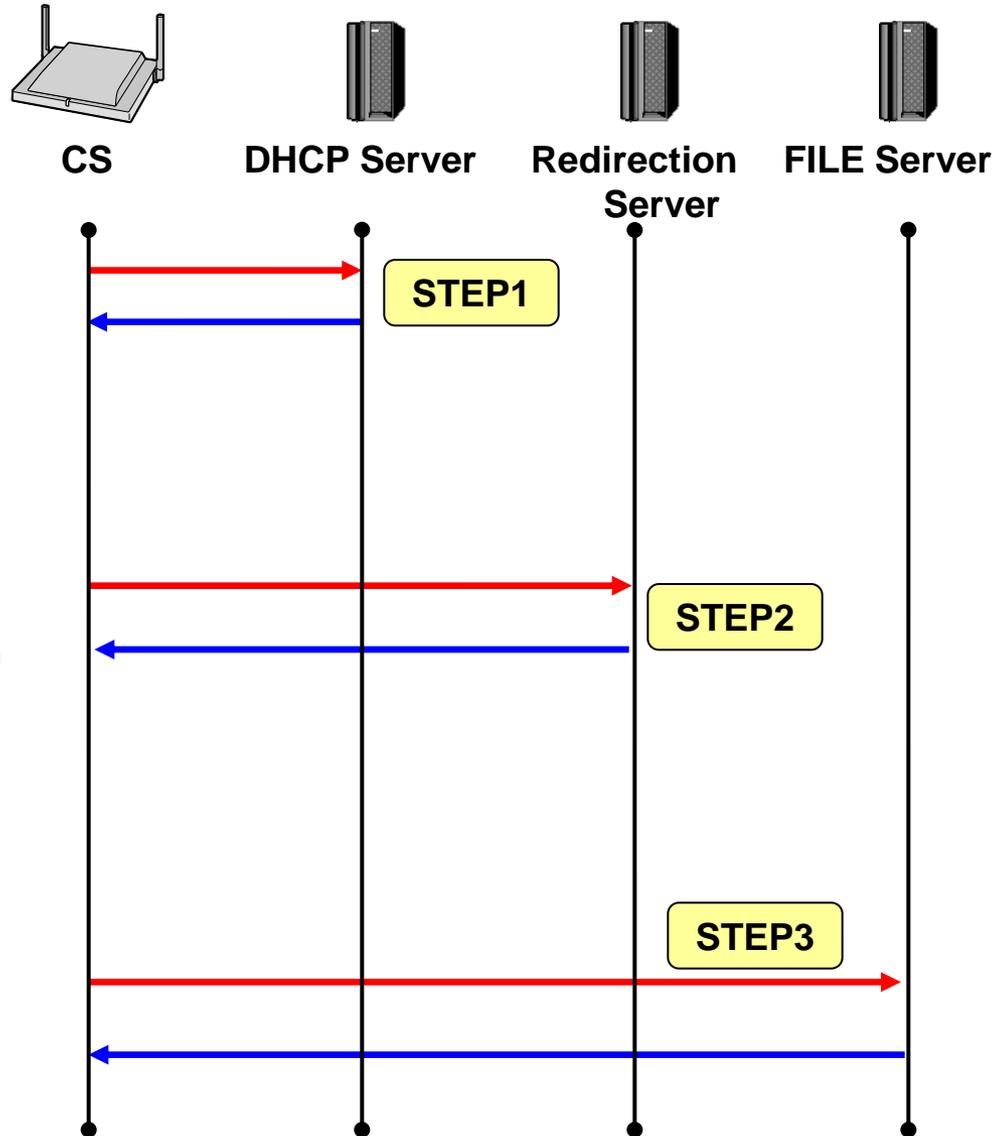
STEP4

The CS downloads the configuration file for provisioning from the provisioning server.



5.1.1 Provisioning process

By Redirection server



STEP 1

The CS is assigned an IP address by the DHCP server.

STEP 2

The CS downloads the configuration file for provisioning from the Redirection server. The URL of the server where the configuration file for provisioning is stored is set to the CS.

STEP 3

The CS downloads the configuration file for provisioning from the provisioning server.

5.1.2 How to set provisioning server URL (Manual)

Manual setting

- Enter provisioning server URL by CS Web.
 - Log in to the Super Master CS.
 - When IP address of the Super Master CS is unknown, see “Appendix B”.
 - In the [Maintenance] tab, select [Provisioning Maintenance].
[Maintenance] → [Provisioning Maintenance]
 - Enter provisioning server URL to “Master File URL”.
 - Click [All Save].

ID and Password for administrator

ID : admin

Password : adminpass

Panasonic

SIP CS KX-UDS124

Status Network System VoIP Telephone **Maintenance**

Web Logout

Web Port Close

Maintenance

- Firmware Maintenance
- All Firmware Update
- Provisioning Maintenance**
- Error Log
- Restart

Provisioning Maintenance

Enable Provisioning Yes No

Standard File URL

Product File URL

Master File URL

System File URL

Cyclic Auto Resync Yes No

Resync Interval minute(s) [1-40320]

Header Value for Resync Event

All Save Cancel

5.1.3 Configuration file Structure

Example of configuration file

```
# System Settings
...
# Network Settings
...
# Telephone Settings
...
# VoIP Settings
...
# Line Setting
SIP_PRXY_ADDR="as.iop1.broadworks.net"
SIP_RGSTR_ADDR="as.iop1.broadworks.net"
...

# Setting for PS1
# Line Setting
IPEI_PS1="123456789012"
PHONE_NUMBER_PS1_1="3331231"
SIP_AUTHID_PS1_1="userid1"
SIP_PASS_PS1_1="userpass1"
PHONE_NUMBER_PS1_2="3331232"
SIP_AUTHID_PS1_2="userid2"
SIP_PASS_PS1_2="userpass2"

# Setting for PS2
...
# Setting for PS255
...
```

Setting item

```
#System Settings:
System time • Syslog •
Firmware update • Provisioning etc..

#Network Settings:
IP address • DNS • NTP • STUN etc..

#Telephone Settings:
Call control • Tone • Telephone •
SIP-CS • Flexible etc..

#VoIP Settings:
Codec • RTP • Miscellaneous VoIP etc..

#Line Settings:
SIP settings • PS configuration etc..
```

5.1.4 Configuration file example for IPEI registration

If you want to execute IPEI registration, you must write IPEI code in configuration file.

You can recognize IPEI code from label on package.

```
# System Settings
# Network Settings
# Telephone Settings
# VoIP Settings

# Line Setting
SIP_PRXY_ADDR="as.iop1.broadworks.net"
SIP_RGSTR_ADDR="as.iop1.broadworks.net"
...
```

Setting for PS1

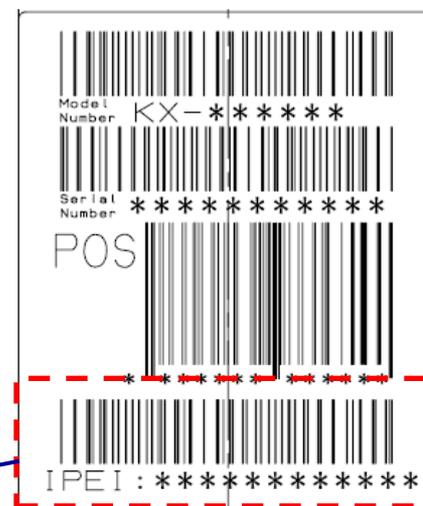
Line Setting

IPEI_PS1="123456789012"

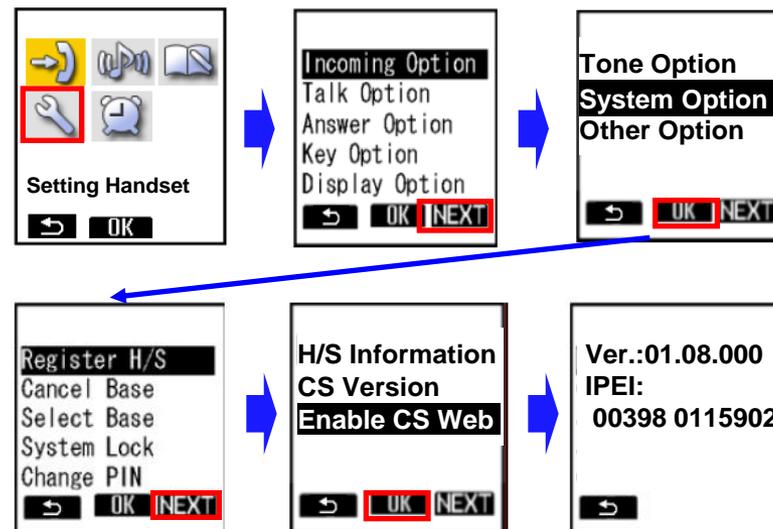
```
PHONE_NUMBER_PS1_1="3331231"
SIP_AUTHID_PS1_1="userid1"
SIP_PASS_PS1_1="userpass1"
PHONE_NUMBER_PS1_2="3331232"
SIP_AUTHID_PS1_2="userid2"
SIP_PASS_PS1_2="userpass2"
```

Setting for PS2

Setting for PS255

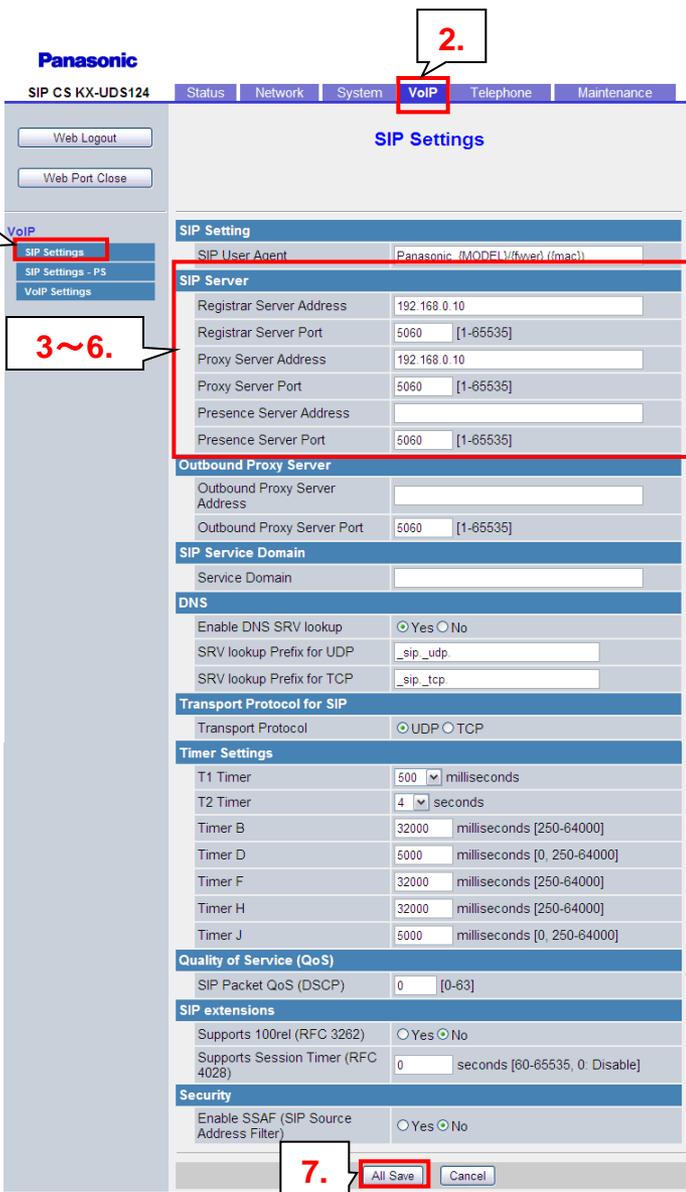


You can also see it from PS system option menu.



5.2 Configuration <Step1> : Specifying the SIP Server's Network Information

This step can be done by provisioning



SIP Server Information

ID and Password for administrator
 ID : admin
 Password : adminpass

1. Log in to the Super Master CS.
 - When IP address of the Super Master CS is unknown, see “Appendix B”.
2. In the [VoIP] tab, select [SIP Settings].
[VoIP] → [SIP Settings]
3. In Registrar Server Address, enter IP address of the SIP Registrar server.
4. In Registrar Server Port, enter the port number of the SIP Registrar server that is set to communicate with the CS.
5. In Proxy Server Address, enter the IP address of the SIP Proxy server.
6. In Proxy Server Port, enter the port number of the SIP Proxy server that is set to communicate with the CS.
7. Click [All Save].

5. Configuration <Step2> : Specifying the Preferred Codec

This step can be done by provisioning

Panasonic
SIP CS KX-UDS124

Status | Network | System | **VoIP** | Telephone | Maintenance

Web Logout | Web Port Close

VoIP Settings

VoIP

- SIP Settings
- SIP Settings - PS
- VoIP Settings**

RTP Settings

RTP Packet Time	20	milliseconds
Minimum RTP Port Number	16000	[1024-45150: Even Number Only]
Maximum RTP Port Number	29000	[5024-49150: Even Number Only]
Telephone-event Payload Type	101	[96-127]

Quality of Service (QoS)

RTP Packet QoS (DSCP)	0	[0-63]
-----------------------	---	--------

Statistical Information

RTCP Enable	<input type="radio"/> Yes <input checked="" type="radio"/> No	
RTCP Interval	5	seconds [5-65535]

Jitter Buffer

Maximum Delay	20	[3-50]
Minimum Delay	2	[1-2]
Initial Delay	2	[1-7]

DTMF

DTMF Type	<input checked="" type="radio"/> Outband <input type="radio"/> Inband
-----------	---

Call Hold

Supports RFC 2543 (c=0.0.0.0)	<input checked="" type="radio"/> Yes <input type="radio"/> No
-------------------------------	---

CODEC Preferences

G722	Enable	<input checked="" type="radio"/> Yes <input type="radio"/> No
	Priority	1 [1-255]
PCMA	Enable	<input checked="" type="radio"/> Yes <input type="radio"/> No
	Priority	1 [1-255]
G726-32	Enable	<input checked="" type="radio"/> Yes <input type="radio"/> No
	Priority	1 [1-255]
G729A	Enable	<input checked="" type="radio"/> Yes <input type="radio"/> No
	Priority	1 [1-255]
PCMU	Enable	<input checked="" type="radio"/> Yes <input type="radio"/> No
	Priority	1 [1-255]

All Save | Cancel

CODEC Preferences Information

1. In the [VoIP] tab, select [VoIP Settings].
[VoIP] → [SIP Settings]
2. In CODEC Preferences, select a codec to use and specify its priority.
3. Click [All Save].

1. Site Survey



2. Basic Network Configuration



3. CS Registration



4. Tree Survey



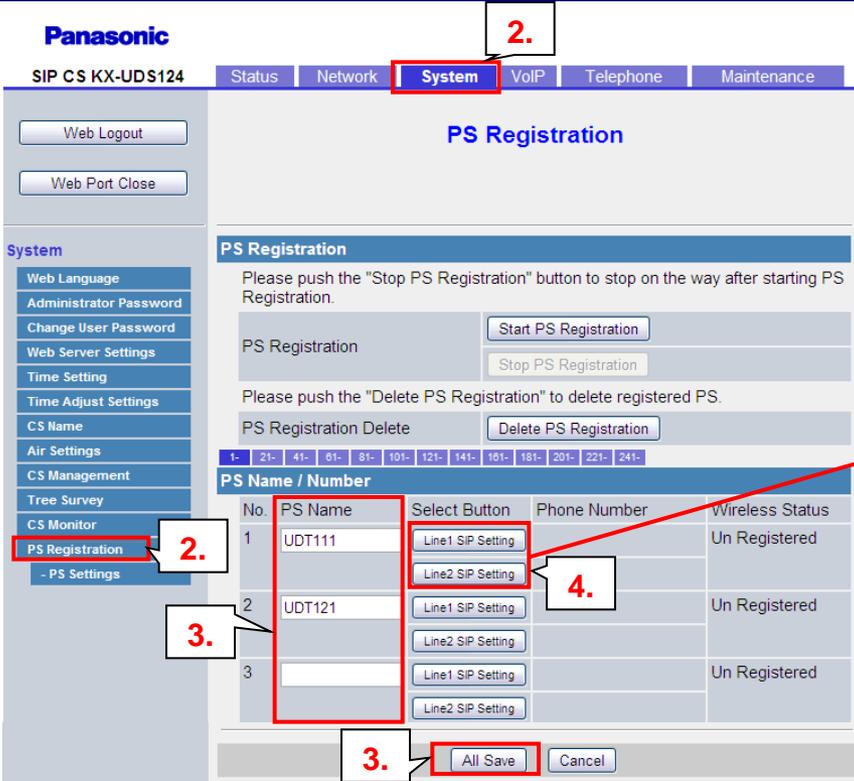
5. Configuration



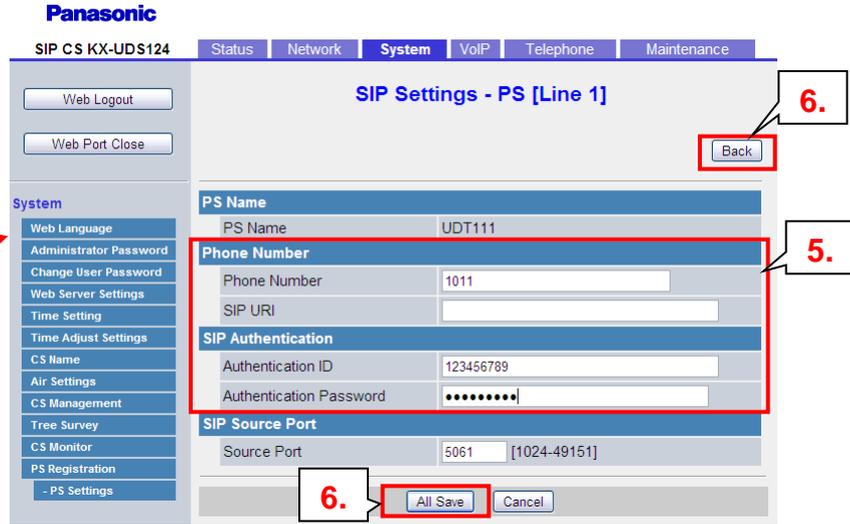
6. PS Registration

6.1 PS Registration

6.1 PS Registration <Step1> : Specifying the SIP account for each PS



This step can be done by provisioning



ID and Password for administrator
 ID : admin
 Password : adminpass

1. Log in to the Super Master CS.
 - When IP address of the Super Master CS is unknown, see “Appendix B”.
2. In the [System] tab, select [PS Registration]. **[System] → [PS Registration]**
3. Enter an extension name in PS Name and Click [All Save].
4. Press [Line1 SIP Setting] or [Line2 SIP Setting].
5. Enter the “Phone Number”.
 (Enter “Authentication ID” and “Authentication Password” If necessary.)
6. Click [All Save] and click [Back].
7. Repeat 2 to 5 for each PS.

6.1 PS Registration <Step2> : Start registration of PS

This step can be done by provisioning (only IPEI registration)

Panasonic
SIP CS KX-UDS124

System

PS Registration

Please push the "Stop PS Registration" button to stop on the way after starting PS Registration.

Start PS Registration

Stop PS Registration

Please push the "Delete PS Registration" to delete registered PS.

PS Registration Delete

Delete PS Registration

No.	PS Name	Select Button	Phone Number	Wireless Status
1	UDT111	Line1 SIP Setting Line2 SIP Setting		Un Registered
2	UDT121	Line1 SIP Setting Line2 SIP Setting		Un Registered
3		Line1 SIP Setting Line2 SIP Setting		Un Registered

All Save Cancel

Panasonic
SIP CS KX-UDS124

PS Registration - Start PS Registration

PS Lists

Available PS

- 1 UDT111
- 2 UDT121

Selected PS

>>

>

<

<<

Next Cancel

Panasonic
SIP CS KX-UDS124

PS Registration - Start PS Registration

PS Lists

Available PS

Selected PS

- 1 UDT111
- 2 UDT121

Next Cancel

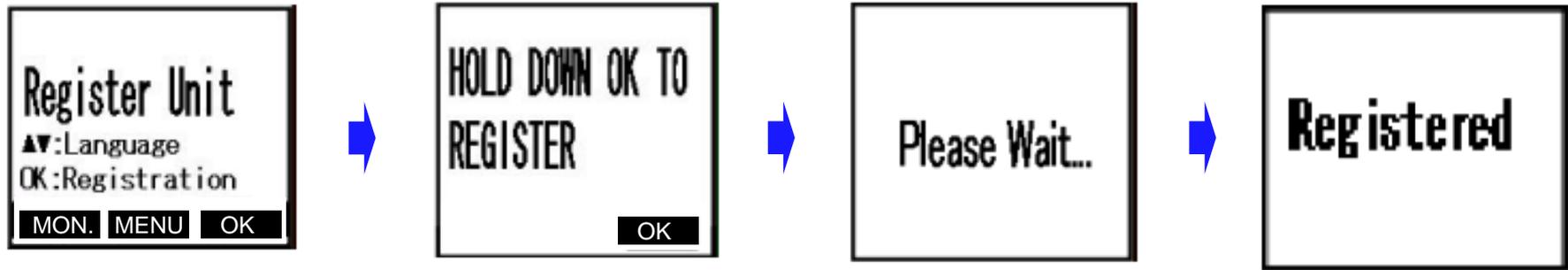
Do you want to register the selected PS?

OK キャンセル

1. Click [Start PS Registration].
2. Select the PSs to be registered in Available PS, and then click [>].
To select all available PSs, click [>>].
To deselect PS(s), click [<] or [<<].
3. Click [Next].
4. Click [OK] to confirm registration.

6.1 PS Registration <Step3> : Operation from PS to register

For unregistered PSs



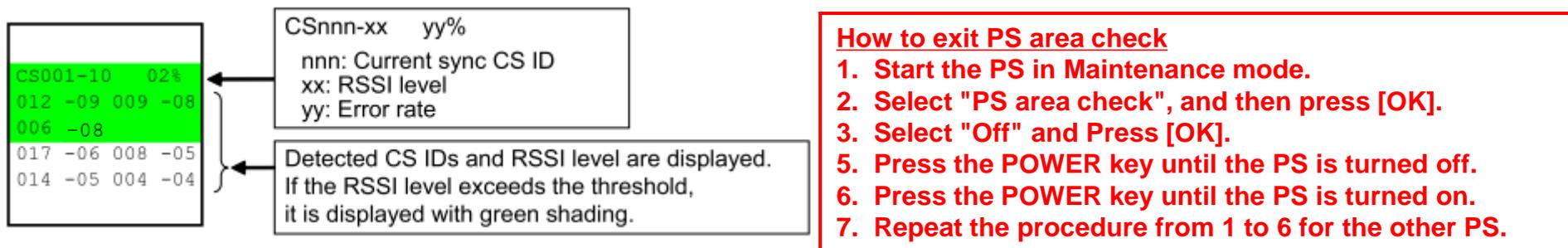
1. Display the standby screen above.
2. Hold down [OK] until "Please wait..." is displayed.
3. When registration has completed, "Registered" will be displayed.

Note

- **You can register multiple PSs continuously. However, PS Registration mode will terminate if no registrations are detected within 2 minutes. (In case IPEI is registered by provisioning, there is no limit these 2 minutes.)**
All CSs controlled by the Super Master CS will enter PS Registration mode at the same time as the Super Master CS. You can register an PS to any of the CSs.
- **Perform the registration procedure on each PS individually.**
Performing the registration procedure on multiple PSs at the same time may result in an error. In this case, perform the registration procedure again.
- **After registering PSs, the Web port will be closed.**
See "Appendix A" to open the Web port again.

6.1 PS Registration <Step4> : Confirm the coverage area

1. Start the PS in Maintenance mode.
* Please see "Section 1.2".
2. Select "PS area check", and then press [OK].
3. Select "On".
4. Press [OK].
5. Press the POWER key until the PS is turned off to exit Maintenance mode.
6. Press the POWER key until the PS is turned on.
7. Repeat the procedure from 1 to 6 for another PS.



1. Call PS(2) from PS(1). (to call the registered phone number by PS Registration.)
You can hear a tone when this signal is received.
2. Set PS(2) close to the CS and move around the service area listening to the tone from PS(1)'s receiver to confirm voice quality and handover operation.
The CS-ID and signal strength of the CS you are connected to and the target CS for Handover is displayed on the PS.
When the signal strength is sufficiently strong, the CS-ID is displayed in green.
(Please refer to "41-003" about explanation with visual information.)

6.1 PS Registration Notice : It might take few minutes to do handover

There is a case, it might take few minutes to be able to handover after PS registration operation except CS1 and registered CS. The reason of this is that CS1 transfers PS registration information to each CS one by one after finishing registration procedure with other various data sent/received between CS1 and each CS.

It takes **5 minutes** as maximum.

This period doesn't depend on the number of CSs or number of PS registering at the same time.

Procedure

1. Site Survey



2. Basic Network Configuration



3. CS Registration



4. Tree Survey



5. Configuration



6. PS Registration

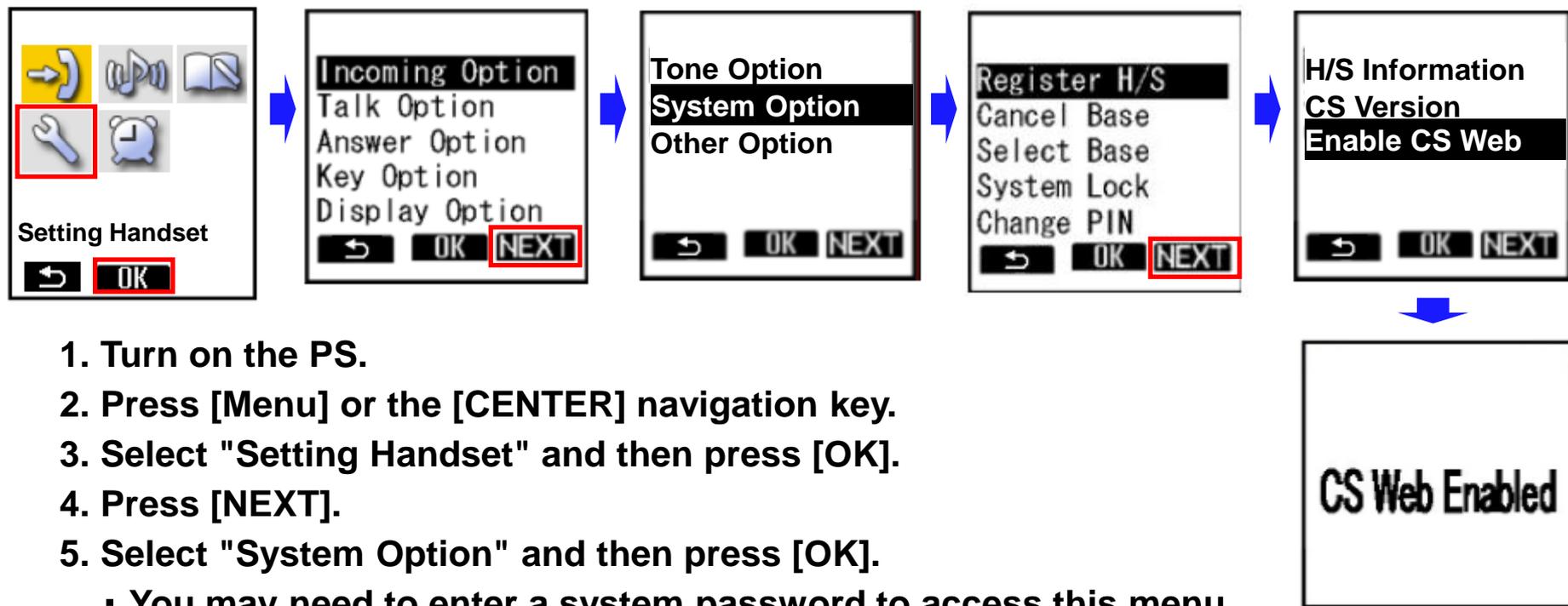
Appendix

Appendix A : How to Open the CS Web port

Appendix B : How to find out IP address of Super Master CS

Appendix C : CS's LED change at the time of CS Registration

Appendix A : How to Open the CS Web port



1. Turn on the PS.
2. Press [Menu] or the [CENTER] navigation key.
3. Select "Setting Handset" and then press [OK].
4. Press [NEXT].
5. Select "System Option" and then press [OK].
 - You may need to enter a system password to access this menu.
6. Press [NEXT] to display the second screen, select "Enable CS Web", and then press [OK].
7. When the operation is complete, "CS Web Enabled" is displayed.

Appendix B : How to find out IP Address of Super Master CS

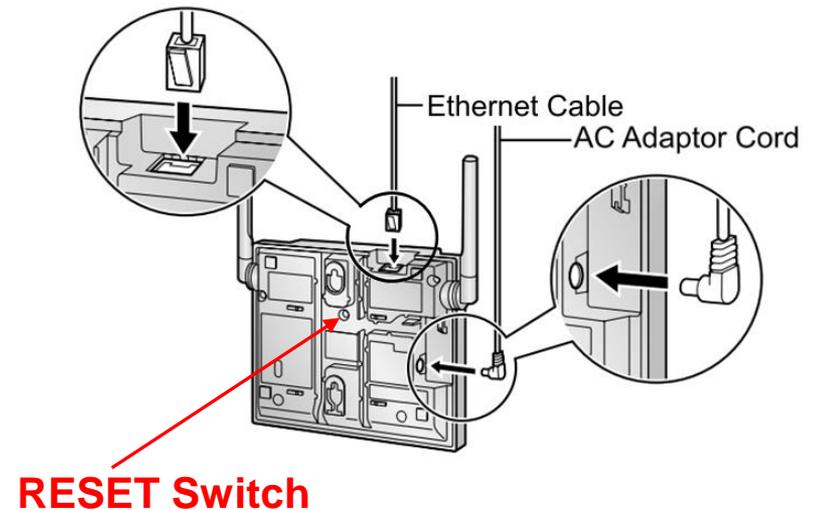
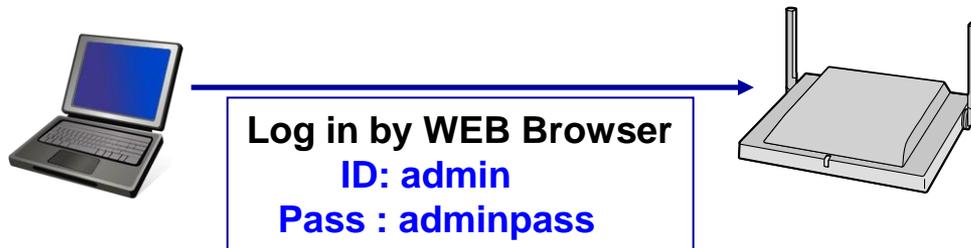
Method to find out IP address of Super Master CS

- **DHCP server**
Access to DHCP server, and find out IP address of Super Master CS
- **Packet capture software**
Download packet capture software
- **Register one PS**
Execute following procedure (If PS is registered, please execute from step 12)

1. Turn on the CS (Super Master) while holding RESET Switch.
2. Release the RESET Switch when the LED flashes [Green/Red/Amber] alternately, then the IP address is set to [192.168.0.241].
3. Log in to <http://192.168.0.241/>
4. Input ID and Password for administrator.

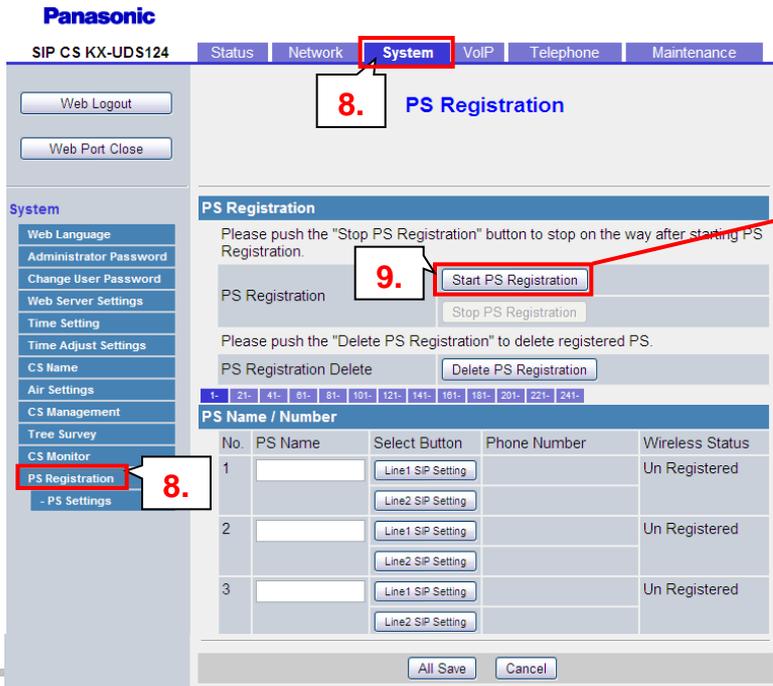
ID : admin

Password : adminpass

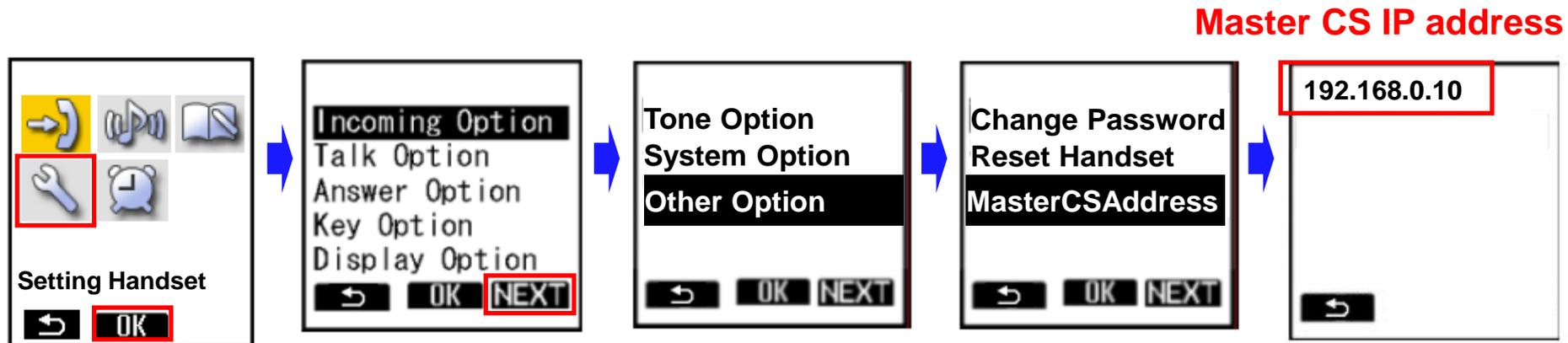


Appendix B : How to find out IP Address of Super Master CS

5. In the [System] tab, select [Air Settings]. **[System] → [Air Settings]**
6. In CS Class, select “Master”.
7. Click [Save].
 - The CS will restart automatically.
 - Once again, please execute 1 to 4.
8. In the [System] tab, select [PS Registration]. **[System] → [PS Registration]**
9. Click [Start PS Registration].
10. Select “1” to be registered in Available PS, and then click [>].
To deselect PS(s), click [<] or [<<].
11. Click [Next] and click [OK] to confirm registration.



Appendix B : How to find out IP Address of Super Master CS

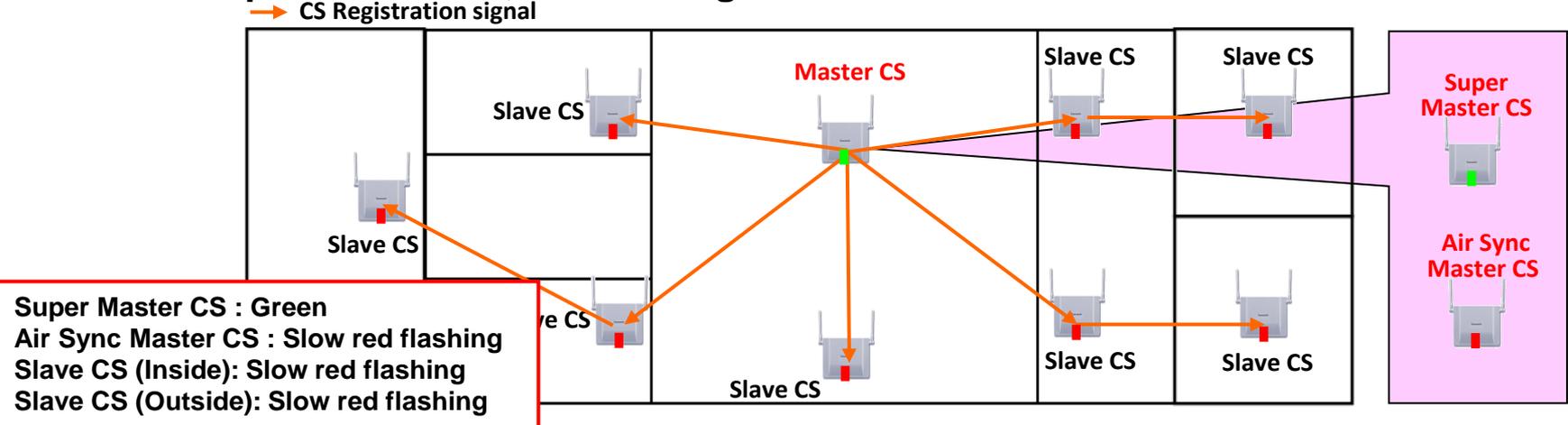


12. Turn on the PS.
13. Press [Menu] or the [CENTER] navigation key.
14. Select "Setting Handset" and then press [OK].
15. Press [NEXT].
16. Select "Other Option" and then press [OK].
17. Select "MasterCSAddress" and then press [OK].
 - Display the Master CS IP address.

Appendix C : CS's LED change at the time of CS Registration

Before CS Registration, CS's LED is slow red flashing.

*In case Super Master CS, its LED is green.



After CS Registration, CS's LED turns green or without change.

(Coverage area of Master CS) Inside: Green
Outside : Slow red flashing

